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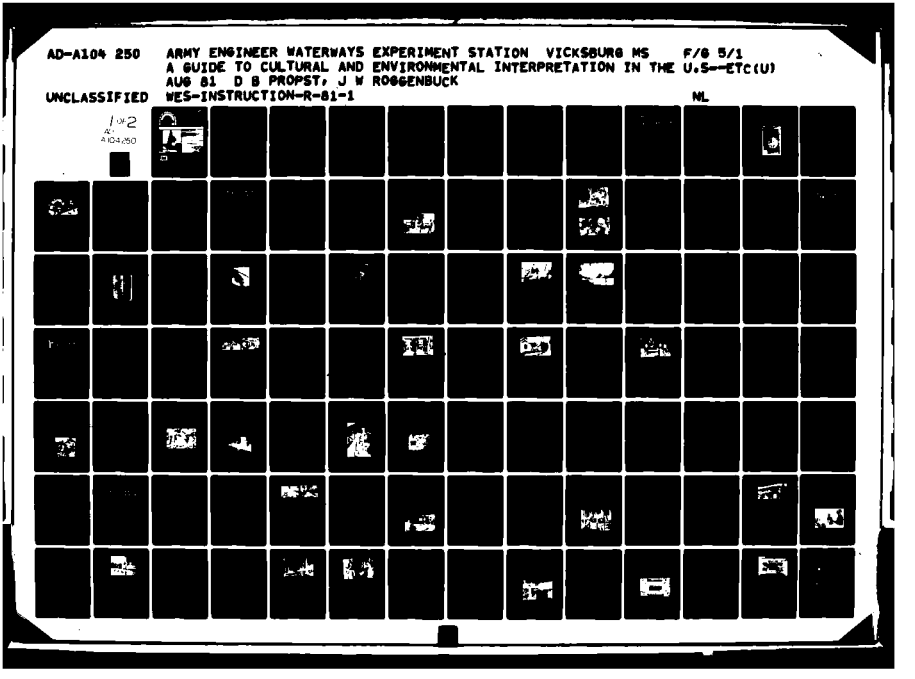

LEVEL II

RECREATION RESEARCH PROGRAM

RRP

A GUIDE TO CULTURAL AND ENVIRONMENTAL INTERPRETATION IN THE U. S. ARMY CORPS OF ENGINEERS

By Dennis B. Propst and Joseph W. Roggenbuck

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U. S. Army Engineer Waterways Experiment Station
P. O. Box 631, Vicksburg, Miss. 39180

INSTRUCTION REPORT R-81-1 AUGUST 1981 FINAL REPORT

Prepared for

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Washington, D. C. 20314

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The goal of the Corps' Visitor Perception and Interpretive Services Program is to "inform and educate the public with regard to the purposes and concept of operation of the water project and the historical and natural features of the area." The purpose of this manual is to assist Corps personnel in developing and implementing these interpretive services at water resource projects. The manual contains information on designing interpretive

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20. ABSTRACT (Continued).

objectives, selecting appropriate messages to convey, understanding the visitor, choosing the appropriate media, selecting and training interpretive personnel, and evaluating interpretive services. Additional sources of information on each of the preceding topics are also supplied.

PREFACE

This manual presents guidelines for developing and evaluating interpretive services at Corps recreation areas. The manual can be used in its entirety as a guide for interpretive planning and programming, or each section can be used alone for information on specific phases in the planning process. Moreover, each section includes an extensive list of additional sources of information.

The manual was written by Drs. Dennis B. Propst and Joseph W. Roggenbuck, Virginia Polytechnic Institute and State University, under Intergovernmental Personnel Act Agreements with the U. S. Army Engineer Waterways Experiment Station (WES). Dr. Propst is now with Shepherd College in West Virginia.

The authors would like to express their appreciation to the following persons for reviews of earlier drafts of this manual: Adolph Anderson, William Hansen, Scott Jackson, Janet Fritschen, and Ronald Hodgson, WES; William Smith, Hartwell Lake; George Hardison, Rock Island District; Valorie Burlingame, St. Paul District; Jeannie Minahan, Omaha District; David Stidham, Nashville District; Cheryl Limpach, St. Louis District; Gabriel Cherem, Interpretation Central; John Hanna, Texas A&M University; Sam Ham, University of Idaho; and John Veverka and Sandra Poneleit, Interpretive Associates.

The study was under the supervision of Mr. William J. Hansen, WES, Recreation Research Team Leader; and Dr. Adolph Anderson, WES, Program Manager of the Environmental Laboratory (EL) Recreation Research Program. The study was under the general supervision of Dr. Conrad J. Kirby, Chief, Environmental Resources Division, EL; and Dr. John Harrison, Chief, EL.

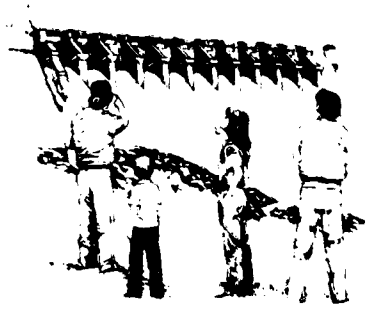
COL Nelson P. Conover, CE, was Commander and Director of WES during the period of this study. Technical Director was Mr. F. R. Brown.

CONTENTS

CONVERSION FACTORS, U. S. CUSTOMARY TO METRIC (SI) UNITS OF MEASUREMENT

U. S. customary units of measurement used in this report can be converted to metric (SI) units as follows:

Multiply	By	To Obtain
feet	0.3048	metres
inches	25.4	millimetres
miles (U. S. statute)	1.609344	kilometres



INTRODUCTION

1. The purpose of this manual is to assist Corps personnel in developing comprehensive interpretive services at water resource projects. To accomplish this goal, the manual has seven major sections: a definition of interpretation and its role in the Corps of Engineers, interpretive objectives, messages to convey, understanding the visitor, choosing the appropriate media, selecting and training interpretive personnel, and evaluation of interpretation. References at the end of each section provide additional sources of information on the subject covered. While these chapters taken together act as an overall guide to interpretive planning and programming, each section can be used alone. For example, if personnel at a water project already have an active and highly developed interpretive program and want information on how to evaluate its effectiveness, they may go directly to the chapter on evaluation. Finally, the manual represents the state of the art of interpretation at this time. As research on interpretation continues, as additional knowledge is gained, and as needs for more information are expressed by Corps field personnel, supplements to this document will be published.

Definition of Interpretation

2. Interpretation as practiced in the diverse natural and cultural resource areas throughout the country has many definitions. Tilden (1967) defines it as "an educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media rather than by simple communication of facts." Risk (1976) states that interpretation is "the

translation of the technical and often complex language of the environment into nontechnical form, with no loss in accuracy, so as to create in the listener sensitivity, awareness, understanding, enthusiasm and commitment." Cherem (1975) suggests that interpretation is "in part the artful ability to make an environment or subject matter come to life for a particular group of visitors." The following definition, developed by Peart (1978), as Chairman of the Subcommittee to Define Interpretation, Association of Canadian Interpreters, includes the essence of previous definitions, has gained wide acceptance among interpreters, and appears to meet the needs of Corps interpreters:

> Interpretation is any communication process designed to reveal meanings and relationships of our cultural and natural heritage to the public (primarily) through firsthand involvement with an object, artifact, landscape or site.

3. Freeman Tilden is well known as one of the early pioneers in the field of interpretation, and his book, Interpreting Our Heritage, has become an often-cited source of background information. In his book, Tilden describes six principles that interpreters can use to plan and prepare interpretative programs. Cherem (1977) has modified these principles, stating that interpreters should:

a. Relate the message to the everyday life of the audiences. Rather than saying "A purpose of the water project is to prevent flooding," say "The water project bars floodwater from entering people's homes, perhaps even your home" (Figure 1).

b. Reveal the essence of your subject through a unique viewpoint: rather than saying "Gulls are scavengers at lakes," say "Gulls clean beaches by eating dead fish and garbage."

c. Provoke the attention or curiosity of the audience. Rather than saying "Nature recycles water," ask "What do you think happens to the water you use on your lawn in the summer?"

d. Address the whole; that is, show the logical significance of an object to a higher level concept or story line. Rather than saying "Pesticides put on farm fields can enter the lake," say "Pesticides from farm fields could end up in fish on your dinner table." (This message also relates and provokes.)

e. Strive for message unity; that is, use a sufficient but varied repetition of cues to create and accentuate a particular mood, theme, aura, or atmosphere. Rather than planning a series of unrelated exhibits in a visitor center, integrate all exhibits into a major theme.

f. Develop separate programs for children. Children's programs should not simply be a dilution of the adult presentation. This issue is addressed in the chapter on understanding the visitor.

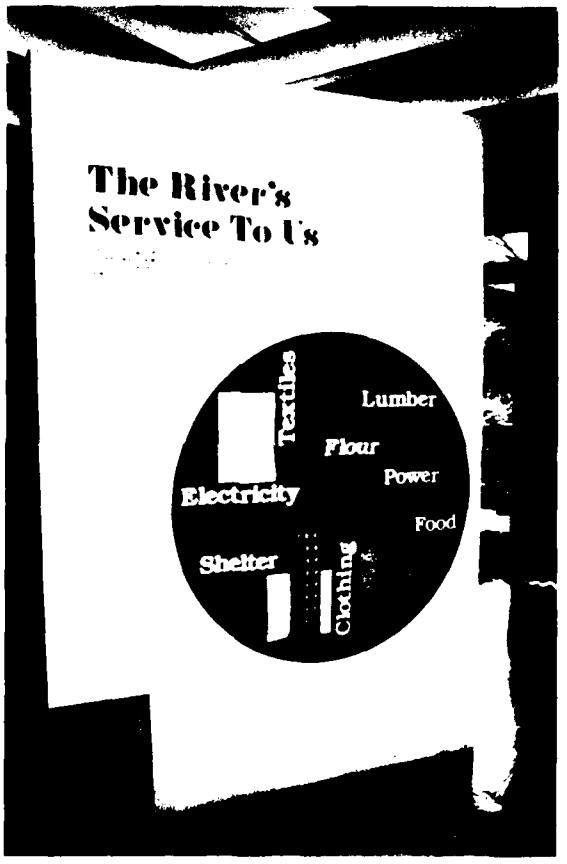


Figure 1. To be effective, the interpretation message must relate to the visitor. Photo courtesy of Nashville District

4. These definitions and principles imply that virtually any concept or phenomenon can be the subject matter of interpretation, and that the interpreter can seek a variety of objectives. Even within a

single agency like the Corps, many topics and objectives are appropriate, and chapters of this manual address these issues.

Interpretation in the Corps

5. The groundwork for interpretive planning and programming in the Corps of Engineers has already been laid. Corps policy states that "to insure effective public involvement in civil works projects, the Corps will maintain channels of communication with the public by presenting information which will promote public understanding of water resources problems, needs, opportunities, and objectives" (U. S. Department of Army 1977). Furthermore, success in maintaining public support depends, to a large extent, on developing an accurate public understanding of what to expect of the Corps of Engineers with regard to its legislative authority, method of doing business, capabilities, and limitations (U. S. Department of Army 1980).

6. The Corps is currently establishing a Visitor Perception and Interpretive Services Program. The general goal of the program is to "inform and educate the public with regard to the purposes and concept of operation of the water project and the historical and natural features of the area. Giving a better understanding to the public through interpretation of these features will assist the Corps in enlisting the aid of the visiting public in preservation and enhancement of the environment" (U. S. Department of Army 1971).

7. More specifically, interpretation in the Corps seeks:

   a. To enhance visitor understanding, appreciation, and enjoyment of the project area by interpreting scenic, natural, and cultural resources.

   b. To aid recreation-resource management objectives by interpreting management activities and problems, and relating wise use of resources to the visitors.

   c. To assist the public in finding and using project facilities and attractions by developing orientation programs and facilities.

   d. To gain public support by promoting an understanding of the Corps of Engineers' programs and activities.

8. Besides the traditional forms of interpretation, self-guided nature walks, campfire presentations, and visitor center programs, there are interpretive services relatively unique to the Corps. These include self-guided water trails, interpreter-led boat tours, water-safety programs, tours of the dam and powerhouse, and "eco-meets"* (Figure 2).

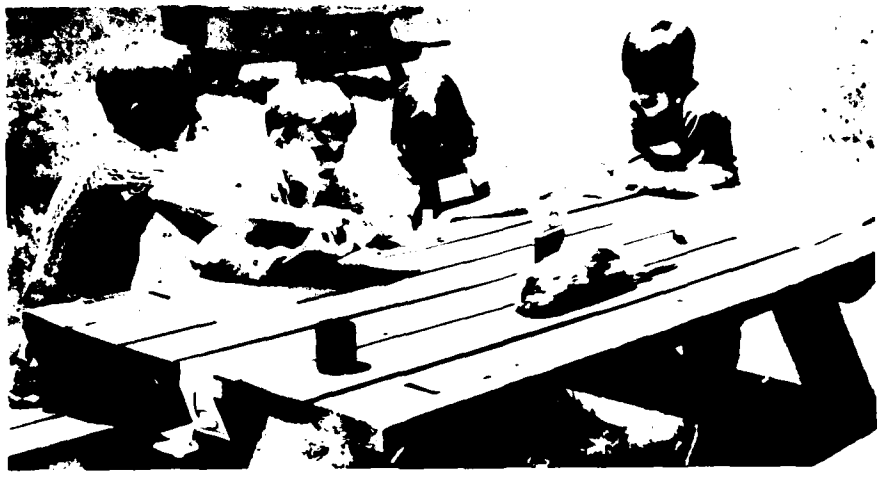


Figure 2. Eco-meets use an outdoor setting and a testing format to teach environmental issues to school children. Photo courtesy of Nashville District

9. Regardless of the type of interpretive service or medium used, the primary distinctions between interpretation and traditional education are the setting and audience motivations: interpretation is directed to people at leisure, usually in a recreation environment. This means that the audience is noncaptive. It is present on a voluntary basis and is usually intrinsically motivated. Traditional education, on the other hand, typically takes place in the classroom. The student is required to be there, and often grades or the desire for a job provide extrinsic motivation. Given these differences, interpretive programs must be somewhat different from traditional instruction and

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* An eco-meet is generally a special program for elementary through high school students. Students from participating school districts compete at Corps projects, testing their knowledge and skills regarding environmental concepts and issues.

the communication of factual information.

10. With the tremendous number of visitors served annually, the Corps can play a leading role in using interpretation as a means of enhancing visitor appreciation of project areas and managing the variety of resources on Corps projects. This manual is aimed at helping Corps interpreters achieve these goals.

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INTERPRETIVE OBJECTIVES

11. The general purpose of this part is to provide guidelines to the Corps interpreter for the development of interpretive objectives. The need for objectives in interpretive planning and programming is stated; a procedure for formulating objectives is suggested; and the characteristics of ideal objectives are discussed.

Need for Objectives

12. Several authors (e.g., Boulanger and Smith 1973, Putney and Wagar 1973) have noted that objectives are needed to clearly specify the desired output or products of interpretive plans or programs. Stating objectives provides several benefits to Corps interpreters and their programs. First, the objective formulation process helps the interpreter to know precisely what s/he is trying to achieve. The procedure requires that the interpreter state what change in audience knowledge, attitude, behavior, or appreciation is going to be accomplished by the program. This permits Corps interpreters and their supervisors to determine whether the planned program supports the goals and policies of the agency. Second, it helps to identify the appropriate content for the program and the most effective way to state the interpretive message. Third, objectives help the interpreter select the communication medium or media that will likely be most successful. Finally, objectives make evaluation possible. If the interpreter does not know what s/he is trying to accomplish, it is impossible to measure the extent to which the interpretive goal is reached.

Formulation of Interpretive Objectives

Hierarchy of objectives

13. Putney and Wagar (1973), Wagar (1974, 1976), and Bradley (1976) all call for the establishment of a hierarchy of objectives (Figure 3) to ensure that interpretive program objectives are both specific and measurable and at the same time solidly based in agency policy. This objective formulation process is ideally suited to the organizational characteristics and administrative style of the Corps of Engineers, and results in the establishment of policy, theme, and evaluation objectives.

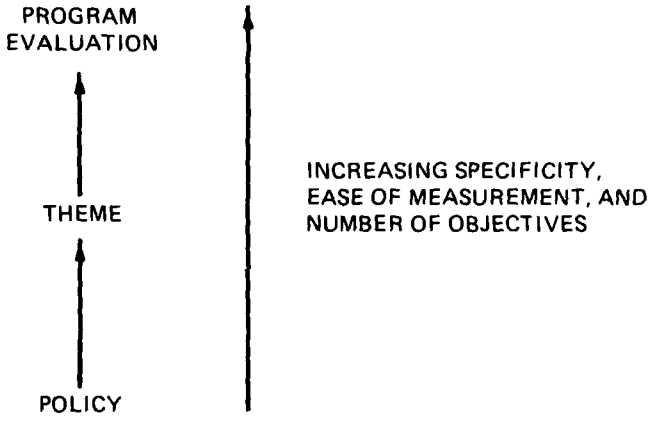

Figure 3. Hierarchy of interpretive objectives.
Adapted from Putney and Wagar (1973)

14. At the base of the hierarchy are broad policy objectives that set overall direction and priority to the interpretive effort. These objectives represent official Corps policy, might well be the same for all Corps projects, and provide guidance at the master planning level. They are few in number, and so general that direct evaluation of the extent to which they are achieved by interpretive programming is impossible. Appropriate Corps interpretive objectives at this level include those described in a previous section: (a) to explain the Corps' and the project's role in water resource development and management; (b) to reduce resource and visitor management problems; and (c) to increase visitor appreciation.

15. At the second level of the hierarchy are theme objectives that are more specific to the individual water project and that guide the selection of appropriate interpretive opportunities. Objectives at this level are typically found in a project's interpretive guide. They are solidly based in policy objectives, but are more specific and numerous. Several theme objectives will likely be needed for each policy objective. As an example, for the policy objective "to reduce resource and visitor management problems" at Duck Lake, the following theme objectives might be appropriate: (a) to reduce the number of water accidents and water-related deaths at Duck Lake; (b) to reduce littering in campsites on Duck Lake; (c) to reduce vandalism of bathhouses at Duck Lake beaches; and (d) to disperse boating use throughout the entire lake.

16. Theme objectives provide more precise specifications of desired interpretive outputs than do policy objectives, but they do not permit accurate assessment of the success of interpretive programs. To reach this assessment level (the top of the hierarchy), there is a need to formulate evaluation objectives. Evaluation objectives are developed at the program level. They are specific, time-bounded, measurable, and stated in terms of outputs or outcomes to be attained. Typically they are stated in terms of what an audience should be able to do as a result of the interpretive program. They have their basis in both selection opportunity and policy objectives, and each interpretive program presented, be it personal or nonpersonal, should have one or more evaluation objective. Examples of evaluation objectives which more precisely define the second-level objective, "to reduce the number of water accidents and water-related deaths at Duck Lake," are: (a) to lower the number of drownings in Duck Lake to zero in 1990, (b) to reduce the number of water-related injuries on Duck Lake by 50 percent in 1990, and (c) to reduce the number of collisions between watercraft by 50 percent in 1990. If the interpreter attains the evaluation objectives, then he or she knows that project and agency level objectives are being met.

Criteria for selecting objectives

17. Different criteria should be used to select interpretive objectives at Putney and Wagar's three hierarchical levels, and the

interpreter plays an increasing role in objective formulation as the process moves from the policy to the program evaluation levels.

18. Policy level. For the interpreter, policy objectives are given. They are based in the legislation creating the Corps, in its tradition, and in its current policy. The interpreter works within these policy guidelines.

19. Theme level. The ranger in charge of interpretation should have an important role at the theme level of objective formulation. S/he should write the project's interpretive guide, which includes the theme objectives. These objectives should first of all reflect agency legislation, tradition, and policy. Resource characteristics and problems also must be considered. For example, if important historical events occurred at the reservoir site, this resource might be interpreted to enhance visitor experiences. If water safety is a serious problem, then resolution of this problem is an appropriate objective (Figure 4).

Figure 4. One objective of a project's interpretation programs may be to decrease the number of injuries and fatalities due to improper use of water safety devices. Photo courtesy of South Atlantic Division

Constraints upon implementation of programs should also be weighed. If budgets or staffing simply would not permit a given objective to be attained, the interpreter should not select that objective. For example, if the interpreter knows that personnel ceilings prevent employment of an interpreter to give safety education programs in local schools, then an objective to accomplish such education would not be appropriate. On the other hand, it is wholly appropriate for objectives to call for outputs slightly beyond the current means of the project. This provides a challenge to interpreters and project managers alike; it also may help to bring additional and unexpected financial and/or staffing support.

20. Finally, there is need for public involvement when selecting objectives. The public, both project users and nonusers, should have an opportunity to make their preferences regarding interpretive programming known. The interpretive specialist needs to understand the visitors' perceptions of the resource, their definition of and concern about problems, their image of the agency, and their preferred and actual use patterns. The nonusers are also important, for they may be ignorant of project opportunities and management practices. They may know current policies and practices, but disagree with them. Interpreters, with their goal of informing the public, providing services to the public, and fostering a good agency image, must respond to the needs of both users and dissenting clientele groups.

21. Program evaluation level. Individual interpreters in the Corps, be they permanent or seasonal, prepare objectives for their own programs. These programs may be such guided activities as conducted walks, dam and powerhouse tours, or campfire programs, or they may be such nonpersonal services as interpretive brochures, exhibits, or self-guided trails. The same criteria for objective selection that applied to the theme level also apply at the individual program level. However, greater specificity of information regarding each criterion is required. The interpreter must know and be able to integrate agency policy directives into his or her programs. S/he must know the functions and activities of other administrative units of the Corps. This

knowledge ensures that interpretive objectives are in harmony with the total Corps effort. Finally, the interpreter must know the program constraints due to limited budgets, staffing, and maintenance.

22. The interpreter must also know the visitors--their sociodemographic patterns, their interests, their attitudes, their likes and dislikes, their familiarity with the site, their length of stay, and their typical behavior at the project. It is important to know audience diversity in terms of opinions, preferences, attitudes, and behavior. The "average" visitor may not exist, and it may be necessary to have different program objectives for different clientele groups. More will be said about this important subject later in this manual.

23. Before establishing program objectives, the Corps interpreter must know the story; i.e., s/he must know the resource. It is difficult to tell the story of habitation of the area by a prehistoric Indian culture if there is no evidence of that habitation. The interpreter may choose not to tell the story of an endangered species that lives on the site if informing the public of its presence would threaten its existence. On the other hand, if vandalism of recreational facilities is prevalent, several specific program objectives might be developed to address this problem (Figure 5).

24. Finally, the interpreter should formulate objectives to utilize his or her own training, skills, and interests most effectively. Each Corps interpreter has a special talent, something unique to give the visitor. It may be knowledge of a particular subject matter (e.g., knowledge of herpetology) (Figure 6); it may be a skill (e.g., ability to play a musical instrument); or it may be the art of storytelling. The interpreter will interpret best what s/he knows and cares most about, and the public will be the beneficiary.

Characteristics of Ideal Objectives

25. Morrisey (1976), in writing about management in the public sector, has stated the attributes of "ideal" objectives. All appear applicable to the objective formulation process of the Corps, and Corps

Figure 5. Vandalism may result from low personal values for natural and man-made resources on Corps projects. Interpretation may help reinforce appropriate values by increasing the visitor's understanding and appreciation of the resource. Photo courtesy of Fort Worth District

Figure 6. In designing program level objectives, the interpreter should use his or her special knowledge or skill. Photo courtesy of Hartwell Lake

interpreters should follow these guidelines when developing planning or programming objectives.

26. The ideal objectives should:

    a. Be consistent with the mission and policies of the organization.

    b. Be related vertically and horizontally to other objectives of the organization; e.g., interpretive planning objectives at the project level must be related to the interpretive goals and objectives at the District, Division, and national levels, and they must be related to the objectives of other management functions at the project level.

    c. Be realistic and attainable, but still represent a significant challenge.

    d. Be consistent with resources available.

    e. Start with the word "to," followed by an action or accomplishment verb.

    f. Specify a key result or outcome to be accomplished; in interpretation this would typically be some change in audience enjoyment, knowledge, attitude, behavior, or appreciation.

    g. Specify a target date for accomplishment of the desired result or outcome.

    h. Be as specific and as quantitative as possible; the ideal programming objective is measurable.

    i. Specify what and when, not why and how.

    j. Be willingly agreed to by superior and subordinate.

    k. Be recorded in writing and periodically referred to by superior and subordinate.

    l. Be understandable to those who will contribute to their attainment.

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MESSAGES TO CONVEY

27. The purpose of this part is to make recommendations for the types of messages that Corps interpreters should convey to project visitors. According to Corps regulations, "An effective interpretive program informs and educates the public with regard to the purposes and concept of operation of the project and the historical and natural features of the area." Although a very broad statement, this description of an effective interpretive program forms a nucleus around which Corps interpretive messages should be bound. Viewed another way, Corps interpretive programs should inform visitors why water development projects exist, as well as interpret local history and natural features.

28. As Tilden (1967) states, interpretation is not merely a science, but an art. As an art, there is much room for creativity in the field of interpretation. Those who are willing to use their creative talents should be able to develop many messages that effectively address the broad goals outlined in Corps regulations. The authors of this manual do not intend to present an exhaustive list of the types of messages that Corps interpreters should develop. Instead, they will present several specific areas toward which interpretive programs in the Corps should be addressed, providing examples from actual Corps projects where appropriate.

Corps Messages

29. Before this manual was written, a meeting was held with District and project personnel actively involved with interpretation in

the Corps. One purpose of the meeting was to find out what field personnel thought the overall goals of Corps interpretive programs should be. Those who attended the meeting agreed on three primary goals in descending order of priority:

a. To explain the role of the Corps and the project in water resource development and management.

b. To help solve management problems (e.g., to help reduce vandalism, water-related accidents, etc.).

c. To enhance visitors' recreational experiences.

Corps interpreters should use these three goals as guidelines for selecting and developing interpretive messages. The messages need not be developed in isolation of one another. In most instances, one program can be used as a means of conveying several messages. A prime example of the use of multiple messages is in the plans for the Detroit District's Lake Superior Marine Museum and Visitor Center (U. S. Army Engineer District, St. Paul 1978). The purpose of the center is to inform visitors of the Duluth-Superior Harbor Project (project purpose). However, the center will also tell the role of the Corps in the development, operation, and maintenance of the inland and intracoastal navigation system from the St. Lawrence Seaway to the Gulf of Mexico (Corps purpose). From a resource protection standpoint, the messages will stress the steps the Corps is taking to ensure that dredged material is disposed of in an environmentally safe manner.

30. For ideas on messages, interpreters are urged to review two publications of the U. S. Army District, Pittsburgh: Environmental Awareness, an information exchange bulletin, and Water Resources Interpretive Lesson Plans. References at the end of this part provide the reader with sources of additional information on the topics covered.

Explaining the Corps' role in water resource management

31. The Corps of Engineers is basically a decentralized organization in that public perceptions of the Corps are heavily influenced at the project level through contacts between visitors and seasonal or permanent park rangers, technicians, and aids. Thus, effective

interpretive programs aimed at explaining the Corps' role in the management of all resources will increase public appreciation and support of water development projects (Figure 7). Several messages for interpreting the Corps' role in water resource management are described below. Methods and media for presenting these messages are discussed in the parts that follow.

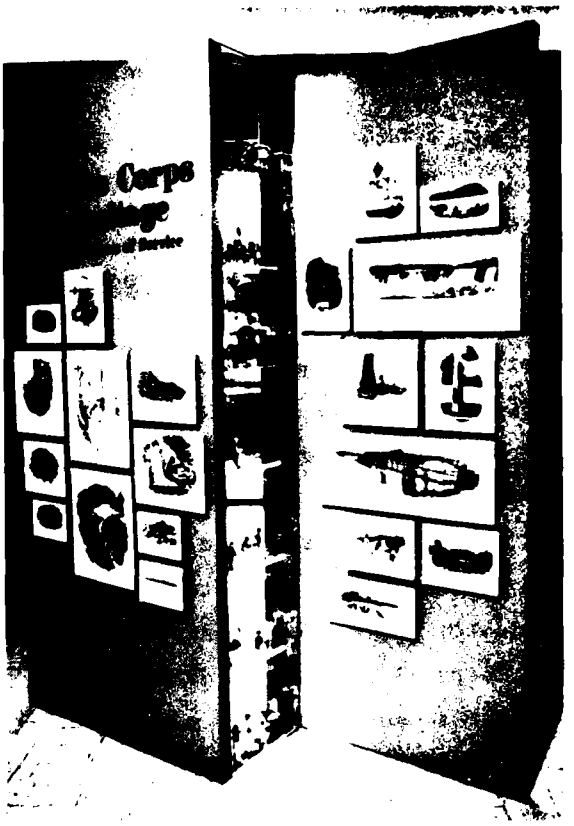

Figure 7. Some of a project's interpretation messages should cover the Corps' mission and history. Photo courtesy of Nashville District

32. The project story. One message which should always be presented to the visitor is the overall story of each water development project. This story may generally be divided into four units: (a) project purpose (navigation, flood control, etc.), (b) political and environmental history (e.g., reasons why the project was considered necessary),

(c) how the project works from an engineering standpoint, and (d) project benefits. Such a story is usually found in project brochures. However, to reach a wider audience than those who read brochures, interpretive personnel should relate the project's purpose in dam, powerhouse, or control station tours, nature walks, visitor centers, or other appropriate visitor perception programs. The project's purpose should also be interwoven with the purpose of the Corps as-a-whole, i.e., the Corps as an agency primarily involved with water resources development and management.

33. Omaha District has developed an innovative method of teaching the project's purpose (hydroelectric power generation) to school groups. The children play a game in which they pretend to be the dam and the water behind it, while the interpreter represents a turbine. This activity gives the children a basic understanding of hydropower which the interpreter can build on with further information (Minahan 1980). Messages of the project purpose need not be limited to dam or powerhouse tours, although these are logical starting points. There are as many ways for these messages to be conveyed as there are Corps projects. The guidelines expressed in this manual coupled with a little imagination on the part of the interpretive staff will help make such messages both interesting and informative.

34. Resource management. Steps that the Corps has or is taking to protect or enhance all resources should be a message given much attention in interpretive programs (Figure 8). This message will vary from project to project and may include such diverse topics as vegetative planting to stop erosion and protect aesthetic values, replacement of wildlife habitat reduced during project construction, lakeshore management, forestry practices, enhancement of water quality, watershed protection, cultural resource management, and energy conservation. It is important for visitors to understand that the Corps is no longer just a construction organization but an agency that is taking positive steps to manage all resources, in a manner beneficial to the environment. Such an understanding is crucial for public acceptance of Corps policies and programs. Since water is a key resource at Corps projects, steps taken to protect or enhance this resource should be given high priority. This

does not mean, however, that messages regarding efforts to protect or enhance other resources should be neglected.

Figure 8. The steps each project has taken in resource management should be interpreted to the public. Publication of the Seattle District

Solving management problems

35. A primary concern of this manual is to show how interpretive programs may be used to help solve, or at least reduce, management problems. Specific messages aimed at solving management problems are numerous, but basically fall into three categories: conflict and compromise, water safety, and misuse of resources by visitors.

36. Conflict and compromise. One area that receives little attention in Corps interpretive programs is the importance of conflict and compromise in natural resources management. Competition for a scarce resource often results in conflict between two or more user groups. One classic example is the conflict between power boaters and sailboaters, especially on some of the smaller reservoirs or those located near urban areas. With the large increase in the popularity of sailing in recent years, such conflict can be expected to grow. Usually the conflict intensifies until citizen pressure or obvious safety hazards emerge. At

that time, managers are forced to implement management techniques such as zoning the lake for different uses. Opposing user groups are sometimes brought into the decision making process, and, through compromise, agree upon certain ways of reducing conflicts. Another classic conflict results when managers draw down reservoirs for flood control at the expense of providing quality fishing opportunities. Many other examples could be listed. The point is that project personnel should incorporate into interpretive messages those instances where the Corps has been responsive to user needs and conflicts in determining management practices.

37. Corps interpreters should also actively attempt to use their programs as management tools to reduce user/resource conflicts. In the first example cited above, a typical management response is to impose some sort of restriction on where and when sailboaters and power boaters may pursue their activities. However, a total package of interpretive programs addressing this conflict may encourage the two opposing user groups to separate their activities without direct management intervention.

38. Safety. The nature of Corps recreation resources makes water safety of paramount concern. Corps managers are constantly trying to help visitors avoid water-related deaths and injuries. An effective interpretive program, with messages intended for both boaters and swimmers, should be developed for visiting recreationists as well as for school and civic groups.

39. The Nashville District, as part of its water safety program, has developed an interesting brochure on swimming safety. The brochure is entertaining ("If Your Children are Ducks, You Don't Need This") yet stresses the importance of requiring children to wear life jackets while on docks, walkways, or boat slip areas (Figure 9). The Tulsa and Little Rock Districts have prepared an attractive brochure that covers safety techniques for the locking through of pleasure boats on the Arkansas River navigation system. These are but two examples of the many Corps interpretive programs used to educate the public on water safety. The importance of such messages to the safe experience of the visitor should be obvious.

Figure 9. Brochures and stickers are often used to acquaint visitors with water safety regulations. Publications of the Nashville and Pittsburg Districts, National Safety Council

40. One useful source of information for those interested in developing or expanding a water safety program was developed for the Coast Guard and is entitled "Educational Alternatives for Boating Safety Programs" (Sager et al. 1978). Besides providing information for planning and conducting a boater education program, this report offers a prototype educational program using various types of media. The prototype program is directed at decreasing collision and loading-related accidents. The report also presents the results of several studies regarding the testing of various messages and pamphlet designs. For instance, the researchers found that recall of pamphlet information was greater for those persons who read a well-designed and well-written pamphlet than for those who read a pamphlet designed in ways similar to many of the existing boating educational materials. Another benefit of the Sager et al. (1978) document is a listing of sources for boating and recreation education materials.

41. Misuse of resources by visitors. The types of messages described in this section are aimed at stopping or reducing the number of

nondeliberate acts of littering and vandalism. Since these are two continuous management problems on most projects, every opportunity should be used to incorporate into the project's interpretive program messages explaining the negative effects of littering and vandalism.

42. One example of such a message is "Trees Need Their Skin Too!", a program used at Robert S. Kerr Lock and Dam in Oklahoma. An attractive brochure is used to explain the negative consequences that ax wounds, lanterns, ropes, nails, and vehicles can have on the growth patterns of trees. Another example is "Everybody Needs Soil," a message developed at Lake Ouachita, Arkansas, to persuade people to park their cars and campers only in designated parking spaces. An important aspect of both these messages is that they do not merely ask people not to do something. Instead, they use an entertaining format with simple text to explain why such acts are detrimental.

43. Of course, whether or not these messages are effective depends on the extent to which they decrease the actions which they are intended to inhibit. If a particular message is found to be ineffective, it should be either modified or discontinued. Some simple methods for evaluating such messages are presented in the final part of this manual.

Increasing visitors' appreciation

44. Messages designed to enhance the recreational experience of visitors are highly related to messages aimed at telling the project's story and solving management problems. For example, a program explaining how a powerhouse functions will most likely have a positive impact on visitors' recreational experiences. On the other hand, a water-related accident or severely vandalized restrooms are bound to detract from a satisfactory recreational experience. The messages covered in this section address a deeper level of understanding, perhaps the most important function of interpretation. Leopold (1970) called this deeper level of understanding an "environmental ethic" that is developed by "building receptivity into the still, yet unloving human mind." To Tilden (1967), this process culminates in a revelation of meaning and relationships that lie behind what the senses perceive. Messages designed to increase the visitor's appreciation should create a spark to ignite

curiosity. The ultimate goal is to provide the visitor with a keener awareness and appreciation of the environment. It is believed that as more and more people are reached in this manner, less time and money will have to be spent developing programs intended to decrease the number of acts of depreciative behavior both onsite and offsite.

45. Messages directed toward enhancing the experience of the visitor can be broken down into two smaller categories: culture and natural features. Before messages addressing these topics can be developed, it is necessary for project personnel to know what resources are present. A complete inventory of the historical and natural features of the project is required. An inventory, in its simplest sense, is a list of objects and concepts that may be interpreted. In some cases, such inventories will have already been completed as part of project master plans. However, for those interested, a report for the Corps of Engineers by Sharpe (1977) provides a case example of the interpretive inventory process, the types of data that should be collected, and how interpretive programs can be built around such data. Additional references include National Park Service (1974); Veverka, Poneleit, and Traweek (1979); and U. S. Army Engineer District, St. Louis (1980).

46. Culture. Interpretive programs regarding the history of a given area (Figure 10) could include information on native Americans, early explorers, early settlement, growth and development, past and present land uses, and history of the Corps of Engineers. Other interpretation programs may be developed on prehistoric or contemporary cultures and social systems (e.g., prehistoric Indian or contemporary Appalachian or Mexican cultures). The overriding goal should be to give the visitor a cultural perspective of the area. Other programs, such as those pertaining to natural features, may be built upon this cultural perspective. This process will enable the visitor to be more aware of why certain attitudes, values, management practices, and land uses exist as they do today.

47. Natural features. Messages involving project climate, geology, hydrology, vegetation, limnology, and wildlife represent the final area of major concern in interpretive programming. In the Corps, it appears

Figure 10. Interpretation programs should include events of historical interest that occurred on or around the project. Photo courtesy of Vicksburg District

that more interpretive programs are built around natural features than around any other subject. Three possible reasons for such prolific use of natural features are: the materials are readily available (visitors are exposed to a variety of resources in an outdoor setting), such features are inherently interesting to both personnel and visitors, and it is relatively easy to design and develop programs around such features.

48. As with history of the area, there is an endless array of programs that can be developed around natural features. Program diversity is represented by many examples such as Lake Ouachita's "Geo-Float Trail," a self-guided trail for boaters which interprets the geology of the area (Figure 11). Another example is Lake Sydney Lanier's "Weather Forecasting by the Clouds" (U. S. Army Engineer District, Mobile 1979). Many programs, such as aquatic ecology, "fish in the lake," aquatic plants, and "tracks in the mud," have been developed around the aquatic environment, a focal point of Corps projects.

49. Whatever the program, interpretive personnel should take advantage of opportunities to explain how various components of an

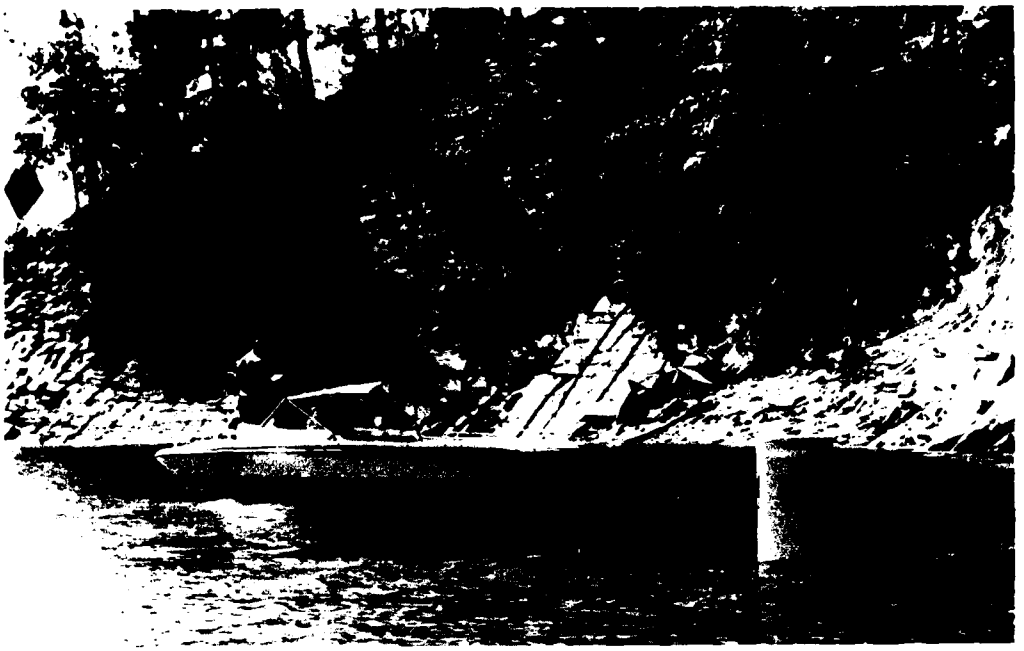

Figure 11. An innovative method for interpreting the geology of a project is the self-guided "Geo-Float" trail for boaters. Photo courtesy of Lake Ouachita

ecosystem interact. It may be interesting to learn the names of the fish in a particular lake, but it is much more meaningful to learn where these fish derive their food, how they respond to changing temperatures, and what effects such factors as soil erosion and aquatic vegetation have on their relative abundance. Ecological succession, food chains, and nutrient cycles are all useful concepts for developing messages related to ecosystem interactions.

50. In all cases, man's role in these ecological processes should be stressed. That is, the impact these natural processes have upon the visitor should be explained. Examples include the influence of water quality on fishing success and the ecological importance of prey species (e.g., ospreys, kingfishers). Presenting information for information's sake is not interpretation; interpretation involves explaining how all the various pieces of information fit together to form a whole story (Tilden 1967).

Summary

51. It was not the intent of the authors to offer an exhaustive list of interpretive messages. Instead, some general topics have been presented toward which specific messages should be directed. Each message should be developed to help accomplish at least one of three goals: to explain the Corps' role in water resource management, to help solve management problems, and to enhance the user's appreciation of the environment. All three goals are designed to reduce negative perceptions, thereby increasing public support of the Corps' resource management and development efforts. This is no easy task. Overdone interpretive programs may be viewed as merely agency propaganda and produce perceptions of the Corps that are no better than those which would exist if no program had been established. The line between effective interpretation and overkill is a fine one that, nonetheless, needs to be drawn.

52. The second goal is often project specific. The messages developed to help solve management problems will depend on the severity of those problems. This will vary from project to project. Although interpretive programs are developed to reduce certain site-specific problems, it is hoped that appropriate resource protection behaviors learned at one project will be carried to other Corps projects and non-Corps resources as well.

53. The third goal is directed toward developing an environmental appreciation by making visitors aware of their role (past and present) in various ecological processes. As competition for scarce resources becomes greater and greater, it becomes increasingly important for resource management agencies to attempt to develop such an appreciation in the clientele they reach. With nearly 70 percent of Corps projects located within 50 miles* of a metropolitan population of 250,000 or more, the Corps is in an excellent position to provide a

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* A table of factors for converting U. S. customary units of measurement to metric (SI) is presented on page 4.

leadership role in using interpretation to help visitors enrich their recreational experiences.

54. In closing, it should be stressed that interpretive messages must remain flexible, keyed to changes in Corps policy. Moreover, Corps interpreters should not feel that all the messages described in this part must be conveyed. That is, the need for these messages is generally valid but not necessarily appropriate at every project.

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UNDERSTANDING THE VISITOR

55. Why do people attend interpretive programs? Although there are probably many reasons, the major premise is that any interpretive program will be meaningless unless it somehow relates to the interests and needs of the visitor. This is why knowing the characteristics of the audience is of paramount importance.

56. This part is divided into three major sections. In the first, the effects of certain audience characteristics are addressed. In the second section, guidelines on interpretation are provided for three special groups: children, the elderly, and the handicapped. In the third, suggestions are presented on how certain types of visitor data may be collected when developing a new program or modifying an existing one.

Know the Audience

57. There are two issues that will be addressed in this section: visitor diversity and visitor expectations. Audience feedback, or communications from visitors to interpreters, is a must for knowing which programs are reaching the visitor and which ones are not. The authors consider program evaluation efforts so important that the entire last section of this manual is devoted to evaluation.

Visitor diversity

58. One fact that should not be new to most field personnel is that there is no such thing as an "average visitor." The characteristics of visitors at parks and recreation areas are so diverse that interpretive planning and programming is indeed a challenging task. A

compounding problem is illustrated by the following situation (Minahan 1980):*

> How many times does an interpreter encounter a group that consists entirely of children, doctors, women, or college grads? How can an interpreter aim a program at one particular type of person when almost all groups at recreation areas are highly diverse? An interpreter could aim a part of each program to each group, but each visitor would miss a large portion of the program. Interpretive flow would suffer greatly. The result would be a highly fragmented, confusing interpretive program. The solution? An interpreter must try to hit a common ground among the various visitor types. At the same time, a few "specific insertions" (a small portion of a program, often only a brief comment, directed toward one specific visitor element) can be used. Diversity amid generalities. Currents amid a flow. That's the way to go. For example, a Visitor Center tour guide must give a tour to a busload of 5th graders. The guide will aim his/her program to this specific group. The next tour group encountered by this guide is a hodge-podge of visitor types - a suburban family, two Hell's Angels, a French artist, two elderly women, etc. The guide must satisfy everyone by hitting a common ground. Now and again, a reference is made to motorcycles, the French Riviera, the good old days, or some other subject dear to the hearts of a certain visitor group. That's creativity! It takes a good interpreter to carry it off. So, if there is no "average" visitor, there are occasions when hitting a "common ground" is necessary. (This is especially true with exhibitry and other interpretive media which are not easily modified.)

59. Researchers have attempted to identify the relationships between various demographic factors (e.g., age, sex, education, place of upbringing, occupation, etc.) and people's preferences for interpretive topics and media. The results of these efforts are mixed. Roggenbuck (1977) found evidence indicating low correlations between demographic data and preferences for various interpretive services. A study by Mullens (1979) further verifies this finding. Mullens found that visitors to the National Parks could be differentiated from

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* Personal Communication, 1980, J. Minahan, U. S. Army, Omaha Engineer District, Omaha, Nebr.

nonvisitors based on individual demographic characteristics. The visitors tended to be younger, better educated, with higher income and occupational status, and from smaller households and larger communities than nonpark visitors. However, once at the park, these factors did not distinguish between those who participated and those who did not participate in interpretive programs.

60. Other researchers, including Mullens, have also found that, under certain circumstances, some socioeconomic factors are related to preference for a participation in interpretive programs. These results are discussed below. Since research support in interpretation is relatively weak and the few results that exist are often mixed, some of the statements below are based on best guesses. However, a lack of research or a mixture of findings should not undermine the importance of determining the socioeconomic make-up of participants and nonparticipants in interpretive programs. Besides being a useful means of justifying certain programs, demographic data can be used as a first rough cut to help understand visitors' attitudes and motives for attending a particular program. Specific insights into interpretive programming based on demographic, attitudinal, and motivational characteristics of visitors are also discussed below.

61. Age and education. Age and education influence the subject matter, concepts, terminology, and methods that can be effectively used in interpretive programs (Figure 12). For instance, highly educated people may be more interested in learning on their own. Thus, self-guiding trails and exhibits may be more appealing to this group.

62. Specific examples of the effects of age and education have been documented with studies of urban populations in Detroit (Fritschen 1980), visitors in an Ohio State Park (Veverka 1978b), and visitors to numerous National Park Service areas (Mullens 1979). In Detroit, interest in programs on plants increased with age of the visitor. Interest in a program on "nature in your neighborhood" increased with age and education, and interest in a "nature in the city" program was highest among those with some college training. For visitors in the Ohio State Park, preference for some topics (e.g., "what your family can do to

Figure 12. Age has been shown to be a factor in interpretation program preferences, hence the age of the audience should be considered when programs are designed. Photos courtesy of South Atlantic Division, Vicksburg District

fight pollution") increased with age, while preference for others (e.g., "Snakes...the deadly hunters") decreased with age. For other topics, however, preference remained consistent regardless of the age of the visitor. Finally, for National Park Service visitors, Mullens found that intensity of participation (the number of times a visitor engaged in any one interpretive activity at a park) decreased as age decreased, down to 18 to 24 years of age.

63. Thus, there is some evidence that age and education have an impact on interest and participation in interpretive activities. It is difficult, however, to make generalizations because of the relative scarcity of evidence at this time. Furthermore, the effects of these two factors most likely interact with other factors.

64. Sex. Veverka (1978b) found that preferences for certain types of interpretive subject matter varied according to the sex of the visitor. For example, when asked to select from a list of possible topics, more women chose "Tornados and Thunderstorms...The Deadly Clouds," while more men chose "A Close Look at Ohio Mammals." Some topics, such as "Ohio's Poisonous Wildflowers" were selected equally by both sexes.

65. Other researchers have also discovered sex differences in preferences for various subjects. In a county nature center in Wisconsin, Blahna (1978) found that women were more interested in topics related to plants than men, whereas men were more interested in hunting

and fishing subjects. In a nature center in Detroit, plant programs were again selected more often by females than males (Fritschen 1980).

66. There is some evidence in the literature of an interaction between age and sex. Results of the study by Veverka (1978b) show that, at least for interpretive media, preferences exhibited by males and females vary according to age. Of the visitors aged 13 to 18, more females than males expressed a preference for live demonstrations, while for visitors ages 36 to 45, the reverse was true.

67. The reasons for these sex differences have not been well documented. Moreover, with the changing roles of men and women in society, some of the differences noted in the past may no longer be valid today.

68. Place of residence. People from various regions of the country and from different environments within the same region will likely have differing perceptions regarding the natural environment. Benjamin, Moeller, and Morrison (1977) found that children from urban areas with low socioeconomic backgrounds responded negatively to natural scenes of swamps and seashores. Moreover, Fritschen (1980) found that urban residents felt they enjoyed and learned more from programs on urban plants and animals than did residents of suburban areas.

69. Despite the difference in residential areas among visitors, much of interpretation appears to be geared toward those with suburban-type backgrounds, that is, those who have some limited knowledge of natural processes. Urbanites may not comprehend or enjoy such programs because natural environments are unfamiliar or have little relevancy. These programs may also be insensitive to the needs of those with rural backgrounds. For example, it may be that rural children have had much experience with the natural world, but little understanding of biological concepts. The degree to which rural, suburban, and urban backgrounds influence program effectiveness should be of interest to Corps interpreters because of the diversity of visitors to interpretive services.

70. Familiarity. Recreationists' needs and expectations are partially shaped by the number of times they have previously visited an area and the frequency with which they have experienced similar interpretive programs in the past. There is some evidence that the more familiar

recreationists are with a particular site, the less likely they are to attend interpretive events (Machlis 1975). In support of this statement, Mullens (1979) observed that, among National Park Service visitors, frequency of participation increased as the years of residency in present home state and the number of days in or near National Park Service areas decreased. Thus, interpreters who serve a relatively mobile population may find that their ability to attract is greater with this group than with more stable populations.

71. Mullens also found that people who said they visited a larger number of National Park Service areas each year participated more in interpretive activities than did those who visited only one or two parks. Many who participated in interpretive programs were not first time visitors to National Parks and already had some understanding of interpretation.

72. A large proportion of the visitation to the National Parks is by repeat visitors (McDonough, Field, and Gramann 1977). The same is true for Corps of Engineers areas. In fact, with the present energy situation and the close proximity of many Corps projects to large urban areas, interpreters can expect to see a growing trend toward even more repeat visits by local residents who stay longer and use Corps areas as destination sites (Propst 1980).

73. A major implication of repeat visitation is that much innovation and creativity on the part of the interpreter will be required to ensure program diversity. Depending on the particular situation, interpreters may want to implement one or more of the following suggestions:

a. Diversify interpretive experiences by implementing seasonal as well as within-season rotation schedules. This may necessitate a different program each week.

b. Have local residents plan and maintain one exhibit that is changed periodically.

c. In visitor centers, use modular units and displays that can be modified periodically to allow for changes in content, season of the year, visitor center design, or traffic flow patterns (Figure 13).

d. Consider developing several slide shows, synchronized with sound, that can be quickly substituted for one another.

Figure 13. Modular exhibits can be shifted to alter traffic flow patterns or modified to accommodate repeat visitors. Photo taken at the Missouri River Division

74. Programs designed for more transient visitors (those who are passing through, usually nonlocals) should be somewhat different than those for repeat visitors. Transients generally have little knowledge of an area. Thus, in terms of geographic orientation or local history, programs for transients should be more basic than similar programs for repeat visitors. Also, exhibits and messages may be changed less often. As an example, a Corps recreation area receives a mix of transient and repeat visitors. To provide new visitors with information on local history and the project purpose, messages in the visitor center are written at a basic level with only minor changes made throughout the season. However, to hold repeat visitor interest, interpreter-led amphitheater programs and hikes provide additional information about local history and the project; these are changed fairly frequently.

75. Visitor use patterns. In a recent telephone survey of 120 Corps projects nationwide, some managers indicated that their interpretive programs suffered from a lack of attendance or lack of interest (Lacey, Balbach, and Novak 1980). One reason for these problems may be

that interpreters or interpretive programs are sometimes located away from areas of high visitor concentration. If this is true, a means of remedying the situation may be to rotate staff schedules to accommodate visitor use patterns. Sightseeing and picnicking are popular activities at many Corps projects. Since day-users usually have less time to participate in interpretive programs after their main activity, areas where day-use activities occur could be used more widely for presenting interpretive programs of relatively short duration (e.g., no more than 1/2 hr).

76. To increase attendance at campground programs, it may be helpful to schedule them during the morning, midday, or afternoon, instead of in the evenings. Other suggestions include posting notices in campgrounds a couple of days before the program, notifying park attendants so that they may inform campers as they register, and sending an interpreter through the campground a couple of hours before the program to tell about the program's contents and to distribute literature.

77. Social groups. Although there is a trend toward more and more singles in the general population, people usually arrive for interpretive programs in some sort of social group. Research results have shown that when people are asked why they attend interpretive events, a frequent response is "to be with family or friends" (Veverka 1978a, Blahna and Roggenbuck 1979). Although this belongingness or affiliation motive appears to be a strong one, these same researchers note that rarely are interpretive programs directed toward enhancing group interaction. Too often, the tendency is for a one-way flow of information from the interpreter to the visitor, instead of allowing groups to interact or permitting two-way communication with feedback from the visitor. This implies a needed emphasis on devices such as quizboards, live-animal aquariums, and "touch tables" (Figure 14) as well as topics directed toward people's desires to affiliate (e.g., "how to prepare a wild foods feast for your friends").

78. There is other support for these statements as well. Machlis (1975) has found that teacher-learner roles are important in families; children can learn from their parents and parents can learn from their children. This may be one reason why topographic relief models are one

Figure 14. "Touch tables" encourage interaction among family members. Photo courtesy of Nashville District

of the most popular exhibits at visitor centers (Washburne 1971). Families or other groups can congregate around the relief model and discuss it informally at their own pace. For Corps projects, models of the powerhouse, locks and dams, various ecological processes, or other features will likely have a similar appeal.

79. The size of the group is also an important factor to consider. Conducted walks, exhibits, and boat tours are usually ineffective with large groups. Large groups are almost always limited to auditorium or amphitheater presentations and mass media (e.g., publications). People tend to be restless and inattentive in a large group and it is often difficult to effectively present detailed or complex issues.

80. Visitor attitudes. Although it is often not clear what effects attitudes have on people's behaviors, how a person feels about a particular topic appears to influence his or her reception of the interpretive message. To be able to change negative attitudes about certain management practices, Corps interpreters need to know what their visitors' beliefs are and how the visitors evaluate those beliefs. To illustrate, a visitor does not know that the Corps draws down reservoirs for flood control. Being an avid fisherman, he forms a negative feeling

toward the Corps when he finds out who is responsible for letting water out of the lake. In this case, informing the angry fisherman why lake drawdown is necessary helps change his attitude back to the positive. As another example, a sailboater arrives at a project for the first time only to see long lines at the boat ramps and many powerboats on the lake. The sailboater believes that the Corps discriminates against sailboaters and immediately forms a negative evaluation of the Corps. In this case, a program informing the sailboater that the lake has been zoned to prevent conflicting uses would be helpful in developing a more favorable evaluation of the Corps.

81. Visitor motivations. A knowledge of visitor motivations may help interpreters understand why certain interpretive activities or topics are preferred and why some programs are more satisfying than others (Roggenbuck 1977, Veverka 1978b). For instance, waterskiers may be driven to pursue their activity by thrill seeking, social status, and achievement motives. Thus, programs which allow waterskiers to learn on their own (e.g., self-guiding boat trail), prove themselves (e.g., quizboards), learn the dangers of their sport, and learn as a group may be preferred.

82. Knowledge of people's motives may also aid in advertising interpretive programs. Veverka (1978a) provides this example: knowing that visitors are likely to prefer hikes primarily for an "enjoyment" motive, advertisements for an interpretive hike should stress words like "enjoy," "fun," and "have a good time." The interpreter must then ensure that the visitor has an enjoyable time as well as attempt to satisfy other visitor motives (e.g., wanting to learn about nature, be with family and friends).

83. Motivations also indicate something about where and when to interpret. At some projects, complaints of reckless boating are numerous. Boaters are usually anxious to put their boats in the water as quickly as possible. Thus, visitor centers are unlikely to be effective places for messages dealing with reckless boating. Programs should be developed near the boat ramps (Figure 15), in campgrounds, or anywhere else boaters concentrate. If boaters do not desire to spend time onsite

Figure 15. Boating safety programs may be most effective when conducted where boaters congregate, such as launch areas. Photo courtesy of Hartwell Lake

participating in a boater safety program, then the message may have to be presented away from the project (e.g., newspapers, boat dealers, etc.).

Visitor expectations

84. Outdoor leisure settings are places where visitors expect informality and free interaction among group members. As noted earlier, many facilities and programs are designed to deal with individuals on a formal basis and do not capitalize on the desire for group interaction. Recreation areas are one of the few places in our society where it is considered permissible for strangers to interact on an informal basis (Field and Wagar 1973).

85. Based on this information, Corps interpreters should consider these points:

a. Avoid formal lectures.

b. Design amphitheaters with informal seating patterns instead of fixed, neat rows. This is one manner in which design may be used to create more of an informal atmosphere.

c. Avoid an overreliance on audiovisual programs. They have their place, but informal contacts with interpretive staff are usually the most rewarding to visitors.

d. During amphitheater presentations, the interpreter should avoid standing behind the stage as much as possible and move closer to the visitors, but not in such a manner that it is difficult for the visitors to see him or her.

e. Hire interpreters of various age groups (retired individuals, teenagers, etc.) and allow them to conduct informal programs with groups of similar age. Such personnel are sometimes available on a volunteer basis (e.g., high school and local civic groups). A potential problem, however, is that volunteers often lack adequate training or experience.

f. Avoid using scientific jargon.

g. Keep the program entertaining by encouraging visitor involvement and by breaking the ice with various techniques (ask questions; display actual objects; conduct discussions in small, informal groups, etc.).

Special Groups

86. This section offers points to consider when developing programs for three special groups: children, the elderly, and the handicapped. While there are many other types of groups and even distinct subgroups among the three presented here, interpreters will encounter these three most frequently. These are also the groups about which the most has been written and about which there are many misconceptions.

Children

87. "Children" is a misleading term for such a diverse group. Others (Machlis and Field 1974; Machlis and McDonough 1978) have discussed the implications such factors as physical development, cognitive development, socialization, and adult relationships have in developing interpretive programs for children. These writers identify several different children's subgroups based upon physical maturity and cognitive development and discuss considerations for interpretive programming for each subgroup. Table 1 contains a synopsis of physical growth and coordination characteristics of children at different age levels, with tips on interpretive programming for each subgroup.

88. In terms of cognitive development, there are four stages that

Table 1

Growth and Coordination of Children at Different Age Levels*

Preschool 0-4 years	School Age 5-9 years	Preadolescent 10-12 years	Adolescent 12-14 years	Adolescent 15-18 years
		Growth		
Growth rapid but slowing down. Abundant energy, active movements.	Steady, continuous rate. Less rapid than that of just older or younger children.	Steady, continuous rate. Sometimes preadolescent spurt in growth. Variations in size at same age begin. Growth makes great demand on energy.	Rapid growth erratic, tumultuous. Sudden increase in height and weight.	Reach full physical maturity. Girls are more mature than boys of same age.
		Coordination		
Poor.	Activities calling for precise coordination, such as close eye work, should be avoided. Activities involving large muscles and large movements should be engaged in. Large tools should be used.	Ability to coordinate increases. Small muscle activities may begin, while large muscle activities continue. Frequently the progress of coordination is arrested by clumsiness and awkwardness. Some have coordination; some not.	Ability to coordinate increased. Still have periods of clumsiness and awkwardness. Some may be more advanced than others, depending on degree of physical development.	Perfection of activities requiring fine coordination, such as those that develop skill in crafts, diving, folk dancing, etc.
		Tips on Interpretation		
Slide shows generally ineffective. Good introductory or rainy day device if music is substituted for words or if children are allowed to move around and vocalize what they see.	Play games that demonstrate concepts rather than discuss concepts directly. Always be prepared to help out - e.g., when they are handling live animals.	Plan short activities with rest periods in-between, so children do not become irritable and lose attention.	Plan activities that require physical skills, but beware of clumsiness factor. May be capable of handling tools, but potential awkwardness requires close supervision.	Most have not developed a strong self-concept yet, so can be easily embarrassed over capabilities in performing certain skills.

* Adapted from Machlis and McDonough (1978).

are generally recognized (Machlis and McDonough 1978). At the beginning of each of these stages, children are not able to perform the operations characteristic of that stage but develop these abilities with time.

89. Early childhood (0-2 years). This is a time of sensing and learning through exploration of the immediate surroundings. Very little thinking takes place. Rarely do interpreters interact with this age group except in a family situation. However, interpreters who do find themselves with this age group should encourage active, physical interaction with the environment.

90. Preschool (2-7 years). Because they are beginning to develop language skills, preschoolers can tell that some objects are alike and can perform some basic classification operations. They know that one deer is like another deer and one raccoon is like another raccoon, but they do not understand that deer and raccoons are mammals.

91. This age group is also beginning to develop intuitive thinking skills; that is, they may immediately know or understand something by intuition, not by conscious reasoning. Thus, children at this age may misinterpret extremely simple-sounding statements. For example, the statement, "Lincoln was a man of great honesty" may be misinterpreted because the word "honesty" is too abstract. However, most preschoolers may know intuitively that "great" is usually used to mean "big" or "large" and, thus, may say that Lincoln was a big man.

92. Lastly, children at this age cannot reverse their thought processes. To preschoolers, once something has happened, it cannot be changed back to its original state. Machlis and McDonough (1978) provide an example: Suppose an interpreter shows a group of preschoolers a bird nest with three eggs. The interpreter states that yesterday there were five eggs and probably a snake or a raccoon had two eggs for dinner. If the children are asked what the mother bird might do to fill up her nest again, they will not respond, "lay two more eggs." They are not mentally able to compensate for the loss of two eggs and revert to the starting point of a nest with five eggs.

93. Elementary school (7-11 years). In this stage, children develop many more cognitive abilities. For instance, they can classify

objects into broader groupings than before. Deer, raccoons, and cows are all mammals. Elementary school children can also order objects in a series and, unlike the previous group, reverse their thought processes.

94. An extremely important cognitive development is the ability to "conserve" quantities of objects that change shape or position. Up until this stage, for example, a tall, thin glass of water is perceived as holding more fluid than a short, wide glass.

95. Thus, elementary school children begin to have the ability to internally manipulate information. However, these children can only manipulate information about concrete, real objects. Abstract concepts like "wildlife value," "resource conservation," and "cons of time" are not perceived in the same way the interpreter intends. A discussion of conflict between adjacent landowner development and wildlife management practices may be seen as a concrete, physical conflict, not as a political issue.

96. Finally, elementary school children can reason inductively, or draw conclusions from real objects they have observed (Figure 16).

Figure 16. Elementary school children are able to draw conclusions from their observations. Photo courtesy of South Atlantic Division

For example, they can observe different types of animal tracks and then make generalizations to all animal tracks in a particular area.

97. Junior high and high school (12-18 years). This age group makes several major advances in cognitive abilities. Adolescents can reason deductively, or generalize from hypotheses. That is, they can reason from what is possible or potential. They can think on a purely verbal or abstract level and can discuss problems and potential solutions. Adolescents are concerned with why things happen and are thus likely to demand evidence for statements made.

98. One caution is in order here. Interpreters should be aware that physical development or age does not necessarily mean a corresponding development in maturation or ability to reason. Cultural or other differences in the backgrounds of adolescents could limit or expand their ability for abstract thinking and deductive reasoning.

99. To summarize, there are several important points that need to be kept in mind:

a. Children's thought processes are not just an immature version of adults; children have fundamentally different thought processes related to age and experience. Ineffective interpretation results when adult programs are "watered down" without changing the thought processes required for understanding them. Children at earlier development stages simply cannot perform certain mental tasks. For example, adults can usually master concepts like the first law of thermodynamics (i.e., matter can neither be created nor destroyed, only transformed). However, elementary school children, lacking the ability to comprehend abstract concepts, will most likely fail to understand the message the interpreter intends. These children can classify objects and make generalizations. Thus, programs dealing with basic food chain relationships or characteristics that predators have in common will be more readily understood.

b. The dynamics of children's groups must be considered. For instance, school age children place great importance on best friends. Thus, an interpreter may not be very effective at reaching a group of school age children separated by random assignment into teams.

c. Three approaches that should be used together in children's interpretive programming are: action, fantasy,

and instruction (Figure 17). Action allows children to learn, develop skills, and interact with others. Fantasy plays a major role in a child's interpretation of the world, but is seldom used as an interpretive approach. Every experience has the potential to spark a child's fantasy. Even a static exhibit of pre-Civil War life on the Mississippi River may urge children to fantasize about a culture long since past. Instruction, the most common approach, involves a one-way flow of information (campfire talks, slide shows, etc.). The effectiveness of instruction is based on the usefulness of the material presented and the material's relevancy to the child's experiences. Traditional devices such as campfire programs and slide shows do not have to be limited to instruction, but can and should use action and fantasy as well.

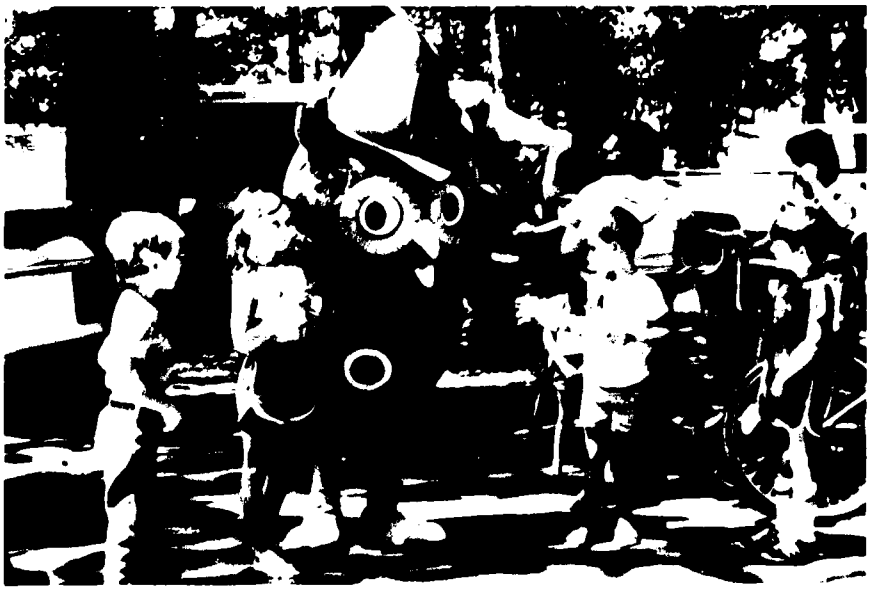

Figure 17. Fantasy can be effective in interpretation for children. Photo courtesy of Vicksburg District

The elderly

100. Recent census figures indicate that the proportion of persons 65 and older in the population is expanding. With the additional free time that comes with retirement, the trend is bound to result in an increasing use of park facilities by the elderly.

101. Members of the Cooperative Park Studies Unit at the University of Washington have prepared two publications that deal with developing interpretive programs for the elderly (Butlena, Field, and Renninger 1977; Renninger 1977). These publications are based on several studies and years of experience in working with the elderly. Corps interpreters lacking such experience would do well to review this material before developing interpretive programs for retired visitors. An extremely important point is that retired visitors in parks are somewhat different from the aging population as a whole. Few are physically or mentally disabled. Elderly visitors represent a very diverse group with many skills and much experience. They are adopting a new leisure role that often involves traveling in their mobile homes, viewing leisure as an end in itself, and making every recreation area a temporary homestead.

102. Other noteworthy aspects of both reports are:

a. Social interaction is important to retirees (Figure 18). Many will not attend formally structured interpretive programs that do not allow socializing.

Figure 18. Elderly visitors perfer interpretation programs that allow them to interact with others. Photo courtesy of Hartwell Lake

b. Many retirees are long-time repeat visitors to certain recreation areas and have accumulated years of experience in various areas. This means that interpreters need to offer a wide variety of activities.

c. The elderly have time to explore, stay longer, and develop relationships with other persons. Because they often make extended stays and possess expertise in many areas, it may be very effective to have the elderly themselves conduct some interpretive programs.

d. The elderly are aware of their physical limitations. Interpreters should always give accurate details of trail conditions and interpretive activities.

The handicapped

103. Beechel (1975) prepared a comprehensive manual on the development of interpretive programs and facilities for handicapped persons. Appendices to Beechel's manual include design specifications for parking, walkways, resting areas, drinking fountains, public telephones, trash receptables, and restrooms. The text of the manual addresses the handicaps of blindness, deafness, deaf-blindness, mental retardation, and ambulatory limitations.

104. Beechel emphasizes that those with physical or mental impairments have the same needs for and desire the same benefits from outdoor recreation as anyone else. In fact, the needs of the handicapped are probably greater than those of other people because of social, physical, mental, or cultural restrictions resulting from their impairments and from living in a world not designed for them. This does not mean, however, that the handicapped should be socially segregated by design of facilities. Often they do not want or need special facilities and feel isolated if such facilities are provided. Accessibility to facilities is the key, not special design. Other points to consider are:

a. Blind persons are usually accompanied by one or more sighted individuals. Therefore, no special interpretive facilities (e.g., Braille trails) may be needed. If blind persons do come alone to Corps projects, it is important to remember that only 5 to 10 percent of the blind read Braille (Beechel 1975). Thus, guide ropes leading to raised letter signs or sound devices would be more helpful.

b. To develop programs for the deaf, interpreters may need to learn some form of sign language.

c. The sense of touch is extremely important to the deaf-blind. These people are usually accompanied by a non-handicapped person; special facilities are not necessary.

d. Programs for the mentally retarded should be developed for different levels of comprehension. Such programs require interpreters with understanding, patience, and a knowledge of the special requirements of the mentally retarded.

e. Those with ambulatory limitations need facilities that are accessible and usable (Figure 19).

Figure 19. Project facilities should be accessible to the handicapped. Photo courtesy of Albuquerque District

Collecting Visitor Data

105. So far, the authors have tried to impress upon Corps interpreters and managers the need for considering the characteristics of various user groups when planning interpretive programs and facilities. It does little good to collect visitor data without first knowing why it is being collected. The purpose of this section is to recommend techniques for gathering the visitor information that has been described.

106. Project personnel should be aware that visitor attitudes and motivations represent a very complex subject area. Thus, any formal study of attitudes, motivations, preferences, and satisfactions will require the services of a skilled researcher. Much useful information, however, can be learned simply by informally asking recreationists what they think of a particular project, the way it is managed, why they are there, and why they engage in certain activities (Figure 20).

Figure 20. Through informal conversations with visitors, Corps personnel can gain much information about user attitudes and characteristics. Photo courtesy of South Atlantic Division

For instance the staff of Lake Sydney Lanier (U. S. Army Engineer District, Mobile 1979) records the date, time, location, program title, attendance, audience comments, and other factors (e.g., weather) for most

of their interpretive programs. This allows them to obtain a somewhat limited, but informative profile of the type of visitor that attends the programs, the type of programs visitors prefer, and the effect of different factors on program attendance.

107. For most of the sociodemographic factors discussed, there are two other methods of visitor data collection that project personnel can use on a daily basis: review of existing data and observational techniques. Both methods are well suited to determining characteristics of various user groups. It is also useful to know the characteristics of the nonparticipants as well as the participants. In other words, what are the characteristics of those who do not participate in a particular interpretive activity? Why do they not participate? What can be done to change the program to attract more visitors? Answers to these questions can be found by using various combinations of the techniques described below. Such information can also be found by using procedures for evaluating interpretive programs, a subject covered in the last major section of this manual.

Review of Existing Data

108. This procedure involves reviewing the results of observations or surveys that have been conducted within the Corps or by other agencies, universities, or research firms. It is not always necessary to conduct a separate study each time a visitor profile is needed. Often, other agencies or universities have conducted visitor surveys on the project itself or on nearby recreation areas. Such surveys nearly always contain visitor demographic data, some of which may be useful to interpreters. However, it is necessary to know how these data were collected (sampling procedures, etc.) before they are used as a basis for decision making. Data based on a poor study design can be very misleading. Thus, it may be necessary to contact a professional researcher before blindly accepting research conclusions as being valid.

109. Within the Corps, there are three existing sources of information which may be valuable to interpretive planners. The first source is the data submitted by each project to be included in the Recreation Resource Management System (RRMS) managed by the Office, Chief

of Engineers (OCE). Data which interpreters may find useful include visitation by area and by project, reported on a monthly basis, and the percentage of participation in various activities. Of even more potential value to Corps interpreters are the data obtained from periodic project surveys used to update the vehicle load factors needed to estimate visitation. For each recreation area, data are collected on such factors as number of children, size of parties, percentage of day versus overnight use, length of stay, and distance from home. In some cases, however, the data are too outdated (10 years or more) to be of much value. Finally, members of the Recreation Research Program (RRP) of WES are implementing a recreation use monitoring program at a number of projects nationwide (Propst and Abbey 1980). This program is intended to monitor trends in recreation use and visitation patterns, information that has potential value for Corps interpreters.

Observational techniques

110. A major advantage of observational techniques is that no questions are asked of the visitor. Thus, visitors are not "bothered" in any manner. Interpretive staff observe visitor behaviors and group charactersistics every day in visitor centers and campgrounds and during powerhouse tours. These behaviors and characteristics are not always recorded in a formal manner, yet they still provide valuable information for interpretive program planning.

111. More formally, observations may be made according to a sampling plan and the data recorded on special forms for summarization at a later date. The sampling plan ensures that visitors or groups are observed on a random basis, and therefore are representative of all the interpretive participants or nonparticipants at a given facility or program. This eliminates some biasses and costs that may exist if, say, all visitors or groups are observed on a given day or during only one interpretive program. Techniques for developing a sampling plan can be found in two reports: Mischon and Wyatt (1979) and Hanna and Silvy (1977). Although the first report deals with conducting visitor surveys, some of the sampling procedures can also be applied to systematic observations. The Hanna and Silvy report not only discusses sampling

procedures (where, how many, and when) for observations, but it also provides examples of recording forms, helpful suggestions for observers, and ideas as to how the data may be used.

112. One note of caution is that observation, if used as the sole means of collecting visitor information, can produce misleading results. For example, if there are 10 exhibits in a visitor center, and it is found that one of them holds people's attention for twice as long (on the average) as any of the others, it may be logically concluded that that exhibit was more effective in holding attention and communicating its message. However, it may be that the exhibit is holding attention longer because it is confusing; the visitor spends a long time deciphering the message.* Thus, it is necessary to use observation along with other evaluation and assessment methods as often as possible.

Summary

113. The information contained in this part is of primary importance to Corps interpreters. The planning, designing, and development of interpretive programs and facilities hinge heavily upon the characteristics and behavior of the visiting clientele. Several general principles are evident:

a. Because of the great diversity of visitor characteristics, interpreters must be flexible and creative enough to adapt interpretive programs to a variety of different needs and interest. At times, groups are composed of individuals with varying ages, interests, education levels, and experiences. In this case, the interpreter must try to address a common ground with a few specific comments aimed at each type of visitor. At other times, groups are homogeneous enough (high school groups, civic organizations, etc.) that the program can be developed according to the needs and interests of a specific audience.

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* Personal Communication, 1980, G. J. Cherem, Interpretation Central, Ann Arbor, Michigan.

b. Facilities and programs should be designed to be as informal as possible and capitalize on people's desire for group interaction.

c. Special programs need to be developed for special populations (children, senior citizens, etc.). However, handicapped persons do not desire programs or facilities that make them feel segregated from other visitors.

d. Interpretive program data should be recorded including: number of participants, date, time, park type, park name, program title, theme, objectives, and other pertinent factors (e.g., weather).

e. Visitor data most useful for interpretive programming include: attendance at each program; age, education, sex, and occupation of group members; place of residence; number of repeat and transient visitors; number of day versus overnight users; areas of high visitor concentration; size and type of group; length of stay; and visitor attitudes, motivations, and preferences.

f. Most of the data may be collected by observing visitors, informally asking questions, or reviewing existing data. This could be performed by Corps personnel, especially if they have had some training in data collection and reporting. However, formal studies of such characteristics as education, occupation, origin, attitudes, and motivations will likely involve the use of a well-designed survey instrument. If such is the case, the services of a competent researcher are required.

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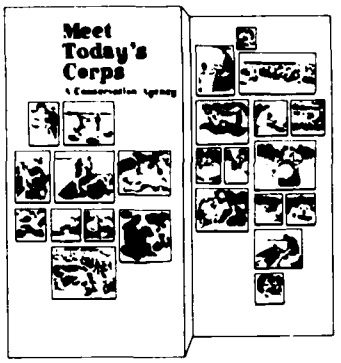

CHOOSING THE APPROPRIATE MEDIA

114. The selection of appropriate interpretive media and their design should be based on three factors: the characteristics and preferences of visitors, the interpretive message, and the project resources. Major emphasis should be placed on matching the media to the visitor and his or her motivations for using the interpretive services. Sharpe (1976) notes that although a common interpretive device for the blind is the "Braille trail," only 5 to 10 percent of the blind can read Braille. Veverka (1978) found that different motivations were involved in visitors' selections of interpretive hikes and demonstrations. Those who indicate a preference for the hike gave "enjoyment" as the major reason, while those who indicated a preference for the demonstration stated they wanted "to see the real thing."

115. The interpretive messages and project resources should also be considered in the selection of media. Sometimes it is easy to devote so much attention to sophisticated audio-visual equipment or other media that the message is obscured. More slide shows, films, and sound devices along trails do not in themselves guarantee that effective interpretation will take place. In some cases, the simplest, least expensive medium is the most effective. Moreover, the Corps and other agencies should not fall into the trap of trying to use every medium in every recreation area, but base their decisions in part on the resources available.

116. In this part, the various types of interpretive media, their advantages and disadvantages, and design criteria, where appropriate, are described. However, this information should not be considered an

end in itself. Visitor group characteristics, interpretive messages, and park resources should also be considered when selecting and developing such media.

Interpretive Media and Frequency of Use

117. There are two general categories into which interpretive media may be grouped. First, personal interpretive services are those through which the visitor comes into direct contact with the interpreter. Second, nonpersonal interpretive services are those that do not require the presence of an interpreter. Examples of each category are listed below:

a. Personal interpretive services
   (1) Information desk duty.
   (2) Point duty (e.g., interpreter stationed by an exhibit).
   (3) Roving duty (e.g., Park Ranger's personal contacts).
   (4) Interpreter-led walks or hikes.
   (5) Interpreter-led auto tours.
   (6) Campfire and amphitheater talks and programs.
   (7) Auditorium talks and programs.
   (8) Living interpretation.
   (9) Cultural demonstrations.
   (10) Special programs (e.g., for school groups).

b. Nonpersonal interpretive services
   (1) Audio stations (e.g., exhibits with recorded sound).
   (2) Messages over portable cassette recorders.
   (3) Messages over auto radio.
   (4) Interpretive signs.
   (5) Self-guided trails or walks.
   (6) Self-guided auto tours.
   (7) Interpretive exhibits.
   (8) Visitor centers.
   (9) Publications.

Other services more specific to the Corps include "eco-meets"* and guided dam tours (personalized) and self-guided boat trails and project brochures (nonpersonalized).

Media use

118. Dawson and Roggenbuck (1979) conducted a mail survey of the 47 National Park Service historical areas in the eastern United States. Their purpose was to determine which interpretive media were used most frequently and which were considered most effective by park interpreters. In summary, living history interpretation was rated as being highly effective, yet was used less than any other method. Slide talks were rated as most effective by a large proportion of interpreters, but ranked tenth out of the 15 interpretive methods surveyed in their frequency of use. Brochures and interpretive signs were used by 91 and 80 percent of the parks, respectively, but were rated lowest in terms of effectiveness. Eignty-three percent of the parks used audio tape presentations, but none of the interpreters rated them as one of their three most effective methods.

119. In a related study, Lacey et al. (1980) found that out of 109 Corps projects nationwide, the most frequently used interpretive methods were: nature films; nature trails; tours of the dam, powerhouse, control station, or similar structure; and programs for civic and school groups (Figure 21). Campfire programs and talks; slide shows; nature walks; visitor or information centers; and amphitheater programs were also used frequently.** Seventy-eight percent of the respondents rated their interpretive programs good to very good. Lack of experienced interpreters and funding were the primary reasons given for programs being of low quality. Although used heavily throughout the Corps, interpretive brochures and signs were rarely mentioned.**,†

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* An eco-meet is generally a special program for elementary through high school students. Students from participating school districts compete at Corps projects, testing their knowledge and skills regarding environmental concepts and issues.

** Information obtained through additional analysis of the data by D. Propst.

† The survey respondents may not have considered brochures and signs to be part of an overall interpretation program.

Figure 21. Amphitheater programs and dam tours are among the most frequently used interpretation methods at Corps projects. Photos courtesy of Vicksburg District, South Atlantic Division

120. The results of these studies are only an indication of which media were used frequently and which were thought to be effective by personnel with interpretive duties. However, the perceptions of personnel do not always correspond with actual visitor use or preferences. In a study of visitors to 10 National Park Service areas, Mullens (1979) found that the interpretive media used by the greatest number of visitors were park literature, visitor centers, and visitor center exhibits. Those used by the least number of visitors were guided tours and walks, historical demonstrations, slide shows, and movies. In another study, St. Clair (1972) found no difference in the effectiveness of slide shows versus guided walks in terms of the amount of information retained by the visitor.* As was stated earlier, visitor characteristics and preferences, interpretive messages, and park resources should form the basis for determining which media to use.

Guidelines for
developing interpretive programs

121. Guidelines for developing and conducting most of the interpretive services are available in the literature referenced on

* Corps interpreters should not assume that these results are applicable everywhere. As is true of any type of survey, the results may be applicable only to the population from which the sample was drawn. Additional research is necessary to determine the generalizability of these results.

pages 101-103 of this part (in particular, see Grater 1976; Hanna 1974; Sharpe 1976; U. S. Army Engineer District, Sacramento undated; and U. S. Army Engineer District, St. Louis 1980b). Specifically, there has been much literature written concerning some of the more widely used interpretive methods, such as guided tours, illustrated talks, exhibits, and slide shows. It is not the authors' purpose to summarize all this material, but to make Corps interpreters aware of where such information may be found. In most cases, there are ample, well-written "how-to" manuals already available. Besides the five references listed above, the reader will be referred to other available literature aimed specifically at a particular interpretive medium.

122. Regardless of the type of media, there are some guidelines to be considered when developing interpretive programs. Tilden's principles, as modified by Cherem (1977) were stated in the introduction. Cherem (1977) offers several other recommendations that are worthy of repeating. These guidelines can be broken into two categories: (a) active and colorful language and (b) nonverbal communication techniques.

123. Active and colorful language. When writing and speaking, Corps interpreters should use:

a. Active verbs, e.g., "mist billowing from the water," rather than "the air is misty above the lake."

b. Colorful nouns, e.g., "a tugboat" rather than "a towboat."

c. Powerful adjectives, e.g., "raging water" rather than "fast water."

d. Personal words, e.g., "you can see the heron" rather than "the heron can be seen."

e. Theme words, e.g., use words that frequently bring the visitor back to your theme - flood: raging water, rain, wet, power, destroy.

f. Simile, e.g., "wrenlike bird," rather than "small bird."

g. Metaphor, e.g., "cascading curtain of water" rather than "falling water."

h. Analogy, e.g., comparison of the turbines in a hydroelectric plant to a water wheel of grist mills.

i. Story, e.g., the use of an Indian fishing legend to relate changes in fish numbers and populations.

Care should be taken, however, that this type of language is not overused. Too many active and colorful phrases may inhibit understanding and interest.

124. Nonverbal communication techniques. The following nonverbal communication techniques can enhance interpretive messages:

a. The use of all the senses. An exhibit on dune stabilization might have a message that includes the sounds of the pounding surf, the smell of sea breezes and/or marsh gas, and even the salty taste of seawater.

b. Color. Color conveys messages. For example, warm colors (red, orange, yellow) are invigorating; cool colors (blue, green) have a calming effect.

c. Texture. Texture also conveys messages. For example, a trailhead sign made of driftwood may convey more of a sense of exploration and wonder than does an aluminum sign.

d. Line. Straight lines in exhibits convey organization, direction, and control. Curved lines are symbolic of the natural environment.

e. Objects. The actual object attracts and holds attention more than do verbal descriptions. Use artifacts, mounted specimens, and study skins as often as possible (Figure 22).

Figure 22. The use of original objects in interpretation increases visitor interest and curiosity.
Photo courtesy of Albuquerque District

f. Photos and paintings. When objects are lacking, photos or paintings are often effective substitutes.

g. Design language. The floor plan of a visitor center or the layout of exhibits in a visitor center can convey a sense of formality or informality. The informal atmosphere is more appropriate for leisure settings and audiences.

h. Body language. The audience responds not only to what an interpreter says, but also to how s/he says it and how s/he looks. Eye contact, posture, gestures, and clothing are important variables in effective interpretive techniques.

Personal Services

125. Direct personal communication is an ideal that Corps interpreters should strive for whenever possible. The advantages of such services are numerous. Personal communications can be adapted to the needs of individuals or groups and can take advantage of unexpected or unusual happenings. For example, "mobile" interpretation can be an effective means of reaching some visitors who do not ordinarily participate in scheduled interpretive programs. Informal contacts with Corps personnel have revealed that, on some projects, there is a trend toward increasing day-use visitation. It is not unusual for day-use visitors to be familiar with only one park or recreation area and to rarely see a Corps employee. In these cases, it may be necessary to use such personal services as roving interpretation, informal visitor contacts, and traveling exhibits.

126. Most visitors enjoy personal services and are therefore receptive to them. Two-way communication gives a feeling of informality, something stressed in Part IV as being an expectation and a need of most park visitors. In addition, the interpreter can use his or her own personality to convey a message effectively by sparking a group discussion, providing details as needed, or using other techniques not available with static displays. The disadvantages of personal services are that trained and talented interpreters and proper management of an interpretive program are needed. Because of money and manpower limitations, both are

often in short supply. Also, the long-term benefits of money spent for personal services are often not easily identified.

Talks

127. Talks are used frequently by Corps personnel in making presentations to school, civic, and other special interest groups. Some important points to consider when developing an oral presentation include:

a. People are notoriously bad listeners, so audience attention must be kept at a high level (some attention-holding techniques are presented in Appendix A).

b. Be aware of the interests, education, and experience levels of your audience. Risk (1976) suggests that although a talk may be developed at the 10th grade level, the interpreter should periodically reach above and below this level with information designed to keep the interest of those visitors with more or less education and experience.

c. Never talk down to an audience. Instead, assume that the audience is as intelligent as yourself, but perhaps uneducated in a particular subject.

d. Know your subject well, but do not try to make experts of your audience. Instead, reveal meanings and relationships, and relate these to the visitors themselves and to resource protection.

e. Express your theme in a short sentence or one paragraph, then prepare an outline. This gives your talk unity and cohesiveness.

f. Organize your talk into an introduction, body, and conclusion, keeping both introduction and conclusion brief and to the point.

g. Give structure and life to your talk by using good transitions, contrasts, suspense and climax, supplementary materials, action verbs, and understandable words.

h. Keep the audience involved by asking numerous questions.

i. A neat appearance, good posture, good voice quality, and much practice are all necessary elements of good speaking.

128. These guidelines are not limited to talks, but should be considered when developing all personal services (e.g., campfire programs, slide shows, and conducting tours.) For more detail and examples of any of these points, the reader should refer to: "Talks" by Howard

Stagner and David Thompson and "Educational Principles and Techniques for Interpreters" by F. David Boulanger and John P. Smith. Both publications are reproduced in Hanna (1974). Other useful references include Risk (1976) and Grater (1976).

Guided tours

129. The guided tour is the classic type of interpretive activity used by such agencies as the National Park Service and Corps of Engineers as a supplement to visitor centers, museums, lecture programs, and self-guiding trails. Besides the advantages of personal services noted earlier, an important advantage of guided tours is that project features can be interpreted in their natural setting to stimulate interest and enhance understanding (Figure 23). However, guided tours may be used by only a small percentage of project visitors. Also, guided tours may not be desirable to those who prefer to learn on their own or go at their own pace, such as parents with small children and those wanting to take photographs.

Figure 23. Through guided tours, Corps personnel can interpret project features in a natural setting. Photo courtesy of Nashville District

130. To achieve effectiveness in conducting guided tours, several general points should be kept in mind:

a. Select a theme and know the area and subject matter well.

b. Develop tour objectives.

c. Adapt the program to the needs of the audience.

d. Arrive at the designated starting point at least 15 minutes early to greet early arrivals and begin the tour on time.

e. Before the tour, let the group know the tour topic, length of tour, trail conditions, and what hazards to expect.

f. To prevent information overload, the tours should not have more than about 10 stops.

g. Make the first stop within sight of the starting point to accommodate latecomers and to get the group's attention.

h. Keep children interested by bringing them into your presentation (e.g., direct some questions to them).

i. Talk in a conversational manner, not like you are giving a lecture; encourage two-way communications.

j. Position yourself and talk so you can be heard and seen. If group members are noisy, stop and remain silent until the noise stops.

k. Encourage people to use all their senses. However, be careful with what you allow people to taste.

l. Use "teachable moments." Although the interpreter should concentrate his or her talk on a certain theme, the interpreter should not be afraid to diverge if a good opportunity arises (e.g., a particular bird flies by, a flower has bloomed, a fish jumps from the water). The ability to deal with unusual circumstances adds life to the tour.

m. Develop a conclusion that ties the whole tour together.

Water tours

131. One special category of guided tours of particular importance to the Corps is "water tours" (walking tours on docks or along the shoreline). Such tours provide an excellent opportunity for interpreting the role of the water resource in Corps policy and management, one of the primary goals of Corps interpretive efforts stressed early

in this manual. Water tours can be effective vehicles for providing firsthand experiences related to topics such as water quality, lakeshore protection, and fisheries management.

132. For more of the specifics of conducting guided tours, Corps interpreters are urged to consult: "Conducted Trips - A Training Bulletin for Field Employees of the National Park Service" (reproduced in Hanna (1974) and Grater (1976)).

133. Two types of guided tours of particular relevance to Corps projects are discussed below.

134. Tours of the dam, powerhouse, or similar structure. Most of the factors which apply to guided tours in general also apply to dam tours, but there are a few notable exceptions. The structure itself limits what can be done in terms of group size and maneuverability. Group size may have to be held down or some stops eliminated because of space limitations. Areas of loud noise may have to be interpreted before entering the structure.

135. Avoid using highly technical terms and be alert to group responses to your program. Bored or uninterested visitors cannot simply walk away as they can during outside programs. Also, periodically change the sequence of stops and the information presented. Tailor the presentation to the particular type of group you are working with and make every story new and exciting to both yourself and the visitor.

136. Power plant and dam tours offer many opportunities for "hands on" experiences. For example, the guides may want to encourage visitors to feel the heat on a generator, the vibration through the generator floor, or the dampness around casing seals.

137. Tours of the main project structure should play a major role in telling the story of the project and the Corps of Engineers in general (Figure 24). The main structure is often what the visitor sees first when entering the project area, and an understanding of its function may lead to public recognition of Corps operations. For instance, the main structure is an excellent setting to provide programs related to energy, hydroelectric power, navigation, and flood control. Prior to conducting tours, visitor safety and plant security must be taken into

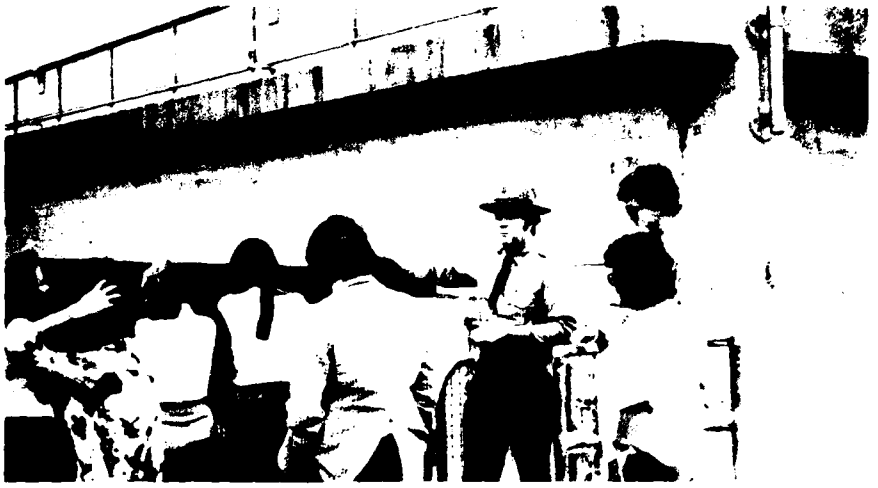


Figure 24. The purpose and functions of the project can be communicated to the visitor in tours of the dam or powerhouse. Photo courtesy of Nashville District

consideration, and there may be a need for some internal public relations between interpreters and power plant staff. However, the benefits, in terms of public support, should outweigh these costs.

138. Boat tours. As is true of power plant tour audiences, members of the boat tour cannot leave if they find the program uninteresting. Thus, interpreters must be aware of audience reactions and make periodic changes in the presentation to avoid monotony. Also, boat capacities are limited; advanced reservations or registration may be required.

139. There are two duties which should be performed before the boat tour begins. First, give proper safety instructions (use of flotation devices, remaining seated, no smoking, etc.). Second, introduce the subject at the boat landing prior to departure. This sets the stage for the tour and accommodates latecomers.

140. Once the tour begins, take a position in the boat where you can be seen and heard. A louder voice than usual will probably be necessary to overcome the noise, water, and boat motors. Circulate among the visitors, talking and answering questions in between the times that you are speaking. Take advantage of numerous "hands on" opportunities by encouraging people to touch things like the water, aquatic plants,

and mud - but only when the boat is stopped.

141. If visitors are using their own boats, drive slowly and have all boats remain in line as you move from place to place. Some sort of public address (PA) system may be useful for more than one boat. However, remember that nothing can ruin your program faster than faulty equipment. Ham (1978) found that faulty PA systems (too low or too loud) accounted for a sizable proportion of visitors' negative comments about conducted activities utilizing such devices. Therefore, test everything before you leave. Also, consider the possibility that a very loud PA system may disrupt visitors not in your program.

Movies

142. The advantages of movies are that they are easy to use, require little staffing, and can be used with large groups (Figure 25). Movies are particularly well suited to explain processes of motion (e.g., fish migration) and sequential events (e.g., geological formations). Animation can be used effectively to convey complex topics. One limitation

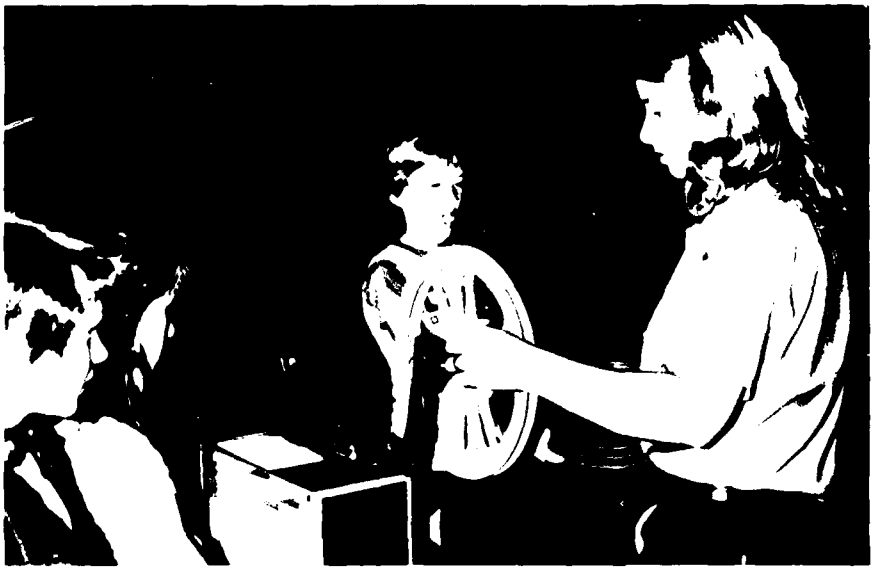


Figure 25. Movies are popular because they are easy to use and can be shown to large groups. Care should be taken, however, to select only those films which relate to the project's interpretation objectives. Photo courtesy of South Atlantic Division

is that films may present material too fast for people to absorb. Also, visitors expect quality presentations. This means that equipment must be pretested and films previewed.

143. Some necessary preparatory techniques include prefocusing, preadjusting the sound, and having the film properly framed on the screen. Start the film at the title and have the audio exciter lamp warmed up prior to beginning the movies. Always have spare bulbs and a spare projector available if possible. If not, be prepared with an alternative program in case of equipment failure.

144. Movies should be selected to relate to one of the three major interpretive goals expressed in Part III. Showing a movie simply because there is nothing else to do is meaningless. The movie should relate somehow to your overall interpretive program.

145. Avoid an overreliance on films. There is much more to interpretation than merely flipping a switch. However, short films can be effectively used to introduce a longer program, or long films could be introduced with a short orientation talk. The point is not to rely on films alone, assuming that a given message will be received.

146. For information on types of movie equipment needed and addresses of film companies, see the interpretive plan for Lake Sidney Lanier (U. S. Army Engineer District, Mobile 1979), the interpretive master plan for Lake Shelbyville (U. S. Army Engineer District, St. Louis 1980a), or a publication developed by the Nashville District (1980) on audio-visual programs.

Slide shows

147. Slide shows are relatively inexpensive, are easily changed, and require fairly simple equipment (Figure 26). Other advantages include the ability to explain complex material in small chunks, to give the feeling of movement, and to stir up emotions when combined with music or narration. Limitations revolve around poor technique and the false assumption that anyone can put on a good slide show. Quality of narration and of slides is a must.

Figure 26. An advantage of slide shows is that they can be easily modified to accomodate repeat visitors or to interpret changes in the project. Photo courtesy of Kansas City District

148. Several important things to keep in mind include:

a. Set up the equipment, get the projector in focus, and check and clean all slides before the program begins.

b. Use a good title and concluding slide.

c. Use dark, blank slides at the beginning and end of the show to keep visitors from being blinded.

d. Do not apologize for the poor quality of the slides or equipment breakdowns. Use only high quality photographs and have standby equipment ready.

e. The talk should be able to stand alone, without the slides.

f. Do not use too many slides and make sure each slide supports the message.

g. Each slide should remain on the screen no longer than 6 to 20 sec.

h. Talk to the audience, not to the screen.

i. Anticipate the next slide by beginning to talk about it just before it appears on the screen.

j. Do not refer directly to the slide by saying such

things as, "This slide shows..." or "Here is a slide of..." The slides should illustrate the talk, not the other way around.

k. Try to use lap dissolve units when possible.

l. Recorded music is appropriate for slide shows, but recorded narration should be avoided if possible as it tends to sound impersonal. However, recorded music with a live narrator is both personal and effective.

149. References for additional information include: "Some Aids to Effective Slide Presentation" by Grant W. Sharpe and "Principles of Multiple Projection" by Ben D. Mahaffey and John W. Hanna. Both articles are reproduced in Hanna (1974). Another useful source of information is the forthcoming book by Gilbert and Fazio, currently in press.

Campfire and amphitheater programs

150. These two types of programs are discussed together because many of the techniques are similar for both. The campfire program, however, is usually more informal than the amphitheater program and does not rely as heavily upon electrically run audio-visual aids. The previously discussed principles of preparing and presenting talks, movies, and slide shows apply to both of these methods.

151. Some recommendations that should be considered for both types of programs:

a. Prepare program objectives.

b. Music may be effectively used before the program, but should be chosen to fit the program theme or to provide a relaxed atmosphere.

c. Equipment should be set up and checked for proper operation prior to the program.

d. Before the program, at least one uniformed interpreter should be present to mingle with the crowd, engage in conversation, and create a warm, friendly atmosphere.

e. Although not always necessary, starting the fire well before the presentation may attract visitors who were unaware of the program. The fire should be allowed to burn down to glowing embers before beginning the slide talk since bright flames may create distractions or disturb people's vision.

f. For large amphitheater programs, consider using a Corps

employee to introduce the program and a speaker for the feature presentation. If possible, it is a good idea to have an extra person there to run the equipment.

g. During the opening, identify the program with the Corps but do not turn it into a commercial. Also, use this time to create interest in your subject with some device (e.g., actual objects) that will stimulate thinking. Maintain an informal atmosphere, but be sure to introduce yourself and the project.

h. Other introductory features may include: (1) interviews with a noted biologist or local resident, the interpreter who will conduct the next day's guided tour, or a ranger who recently rescued a drowning swimmer; (2) a brief question-and-answer session; or (3) special announcements.

i. The program feature (15 to 30 min long) may be a talk, slide show, movie, demonstration, or guest speaker. If slides or movies are used, allowances must be made for such factors as daylight savings time, a bright moon, etc. The main theme should be brought to a logical climax and then summarized in some manner.

j. Make yourself available after the program to answer any questions that may have arisen.

152. There are numerous ways of designing the traditional campfire circle, but creating an informal atmosphere should be the guiding rule. Seats may be arranged around the firepit or there may be a semicircular or cone-shaped arrangement. Logs, rocks, or permanent wooden seats for 50 to 150 people are usually all that are needed. If slide shows or movies are to be used, either permanent or portable electrical outlets will be needed along with a high-quality screen. Some sort of lighting is needed for safety.

153. Most permanent amphitheater facilities are arranged in either a semicircular or cone-shaped fashion with permanent wooden seating for anywhere from 50 to 200 people. The seating may be either on level ground or on a slope to facilitate viewing (Figure 27). Other features usually include a stage, lighting, and electricity. For movies and slide shows, a movable or fixed screen of high quality and a platform on which to place the equipment are also needed. Occasionally, there is a firepit off to one side to accommodate evening campfire programs

Figure 27. Amphitheaters are often built on a slope to give the audience a better view of the program. Photo courtesy of Vicksburg District

(U. S. Army Engineer District, Mobile 1979; U. S. Army Engineer District, St. Louis 1980c).

154. Three sources should be consulted for further assistance: "Campfire Programs: A Guide for Leaders of Campfires in the National Parks" (reproduced in Hanna 1974), the "Interpretive Guide" of the U. S. Army Engineer District, Sacramento (undated), and Grater (1976).

Living history and demonstrations

155. Living history programs portray the way of life of another era so that a historical site may appear to be active and interesting, rather than static and boring. Usually interpreters dress in period clothing and demonstrate the lives of the people during a particular time in history. The visitor becomes personally involved in the program through participation (e.g., carriage rides) or the use of historic sounds, tastes, and smells (Figure 28).

156. The classic example of living history, Colonial Williamsburg, is an entire environment that has been recreated and restored to depict life as it actually existed in colonial times. Such programs require enthusiastic and well-trained personnel. Living history programs also require much time and money for research in order to ensure

Figure 28. Living history programs can bring the past to life and draw the visitor into the program as a participant. Photo courtesy of South Atlantic Division

authenticity. These requirements may be too stringent for many Corps projects. Nonetheless, where appropriately used, living history programs can be extremely effective devices for stimulating interest, satisfying curiosity, and increasing the learning that takes place at Corps projects.

157. Although implied by the definition, it is not always necessary to have authentically dressed "actors" playing actual roles. Demonstrations can be used as a form of living history. Corps personnel or local experts outside the agency may be used to show glimpses of the past, such as how arrowheads were made or how the early settlers trapped animals for food and clothing. Demonstrations have the added advantage of being less expensive to implement than a full-blown living history program.

158. A final caution regarding living history programs is in order. If not conducted properly, such programs can turn historic sites into entertainment centers where costumed performers portray an unrealistically happy or frivolous lifestyle. In other words, it is

easy to exaggerate or to show history the way we think it was, rather than as it really existed. If this happens, misinterpretations and false impressions about the past are likely to result. There is a fine line between entertainment and historical interpretation. Therefore, for both living history and demonstration programs, there is no substitute for a commitment to the presentation of well-analyzed facts rather than dramatic guesswork.

Nonpersonal Services

159. Nonpersonal services make use of the printed word, exhibits, and electronic devices to expand the overall interpretive program. They cannot take the place of the interpreter, but are used to reach those visitors who otherwise would not participate in personal communications and to supplement interpretive services. Most Corps projects do not have enough personnel to rely solely on personal services. Moreover, not all visitors want personal forms of interpretation. From a study of visitors to numerous National Park Service areas, Mullens (1979) found evidence that there are two separate groups of visitors: those who participate mostly in nonpersonal services, and those who participate mostly in personal services. It is not known if the same is true of Corps visitors. However, to the extent that Mullens' findings are generalizable to other agencies, the importance of providing both types of services is underscored.

The printed word

160. All nonpersonal services have one feature in common: the use of a written text that the visitor either reads or hears. Interpretive text writing, like effective speaking, is an art that cannot be taught here in a few paragraphs. For nonpersonal services, visitor enjoyment and the use of interpretation as a management tool hinge on the ability of the visitor to understand interpretive signs and labels. General guidelines will be offered where appropriate in the following paragraphs. However, Corps interpreters would do themselves and their visitors a favor by reviewing several sources before writing interpretive

text: Sharpe (1976); Cherem (1977); Tilden (1967); "Interpretive Text Writing," a publication of the National Park Service Albright Training Center; "Developing the Self-Guiding Trail in the National Forests," a publication of the U. S. Forest Service; and "Sign Lettering" by the Lake George Park Commission (New York). The last three references are reproduced in Hanna (1974).

Self-guiding trails

161. Advantages. The information presented in this section applies not only to interpretive trails traveled by foot, but also to boat trails and auto routes. According to Sharpe (1976), the advantages of self-guiding trails (SGT) are:

a. The SGT frees interpretive personnel for duties in other areas.

b. Visitors may use such facilities at their own pace.

c. Self-guiding trails are useful in out-of-the-way places where it is impractical to station personnel.

d. The SGT can be used by visitors during all seasons of the year.

e. In some cases, there is less site impact because the SGT spreads use and caters to small groups of people. Guided tours, on the other hand, usually involve larger groups and concentrated use on a regular basis.

f. Parents can interpret items on the SGT to their children at the level they feel their children can best understand.

g. Sensitive areas (e.g., a marsh) can be viewed via an SGT with a minimum of site impact.

h. Once established, the SGT is a rather inexpensive way of gaining public interest and support.

162. Disadvantages. Disadvantages include:

a. There is no opportunity to clarify complex topics.

b. The interpretive message, once established, is relatively fixed. Therefore, it may not be appealing to all audiences.

c. There is no interpreter present to hold visitor interest.

d. Vandalism is often a problem.

e. Interpretive signs, leaflet-dispensing boxes, and the trail itself must be inspected and repaired often.

f. Natural phenomena (e.g., storms, plant succession) may make the message obsolete.

g. Features must be interpreted as they appear along the trail. This is not always the same orderly sequence that can be presented in an exhibit.

163. Types. There are basically four different types of self-guided trails: leaflets keyed to numbered markers, interpretive signs at each stop, audio message at each stop, and a cassette recorder containing a tape with messages keyed to each station.

164. In general, the leaflet and marker trail provides the visitor with a future reference guide to take home. The same trail can easily be used for guided tours since there are no interpretive signs to serve as distractions (Figure 29). Problems include the costs of continually printing leaflets and picking up litter.

Figure 29. Messages keyed to numbered posts on a self-guided trail provide interpretation without disturbing the view. Photo courtesy of Nashville District

165. On trails where signs are already in place, changes can readily be made in one or more messages without having to change the rest. However, theft and vandalism may create problems. Also, signed

trails are usually more expensive to install and maintain than leaflet trails.

166. Audio trails can be effectively used as media for the blind. Music and other sound effects can be used to create a mood. Equipment damage and breakdowns, however, can be a problem. Further advantages and disadvantages of each type of self-guided trail are discussed in Sharpe (1976).

167. Design criteria. A trail with one overall theme is usually best because it gives the audience a unifying concept and stresses relationships. It is not always necessary to have a sign or message for every feature. In fact, a sign may sometimes detract from the interpretive experience.

168. Other useful criteria include:

a. About 10 features are usually enough for a half-mile trail; however, appropriateness of the feature is more important than numbers.

b. Sometimes people become uninterested or impatient near the end of a trail. Thus, more features may be interpreted on the first half than on the second half.

c. Messages presented just after a major change in the environment through which the trail passes should be more easily learned and better retained than messages presented at other points (Gustke and Hodgson 1980).

d. Depending on conditions, a one-half mile loop trail with benches for resting and clearings for view is likely to be the most appealing.

e. Because of potential damage, carefully consider whether or not to point out unique features.

f. Built features may be added and interpreted as long as they enrich the overall story in some manner.

g. Encourage the use of as many senses as possible.

h. The trail should have easy access for park visitors and have a fairly level topography.

i. Try not to mix hiking with interpretive trails.

169. Interpretive messages. Whether on a sign, in a leaflet, or on an audio device, the text for each feature must be written so that it is complete in itself. Trailside texts should be short yet long

enough to be clear. Oversimplification can bore the visitor, but technical or unfamiliar words should be avoided unless their meanings are clearly explained. Accuracy in spelling, punctuation, and meaning must be carefully checked.

170. Trail signs. The trail entrance sign must orient and motivate the visitor. When possible, avoid common names like "Oak Ridge Trail" and try something more theme descriptive like "Flood-Ravaged Valley." The entrance sign should contain a preview of the trail's attractions and information on the length or walking time, maximum trail gradient, trail condition, and where the trail ends (Figure 30). It is helpful to add a map of the trail as well. If the trail uses a leaflet, the leaflet distribution box should be on or near the entrance sign.

Figure 30. Trail head signs should provide information on the length of the trail and the walking time. A map is also helpful. Photo courtesy of Vicksburg District

171. Trail signs should blend in with the environment but still be easy to locate. Sign size is relatively unimportant as long as it can be read from the normal viewing distance and is low enough for children to read. Avoid using sign shapes and materials so elaborate that the sign itself becomes a focal point. Colors and illustrations should

be used to some extent to stimulate interest.

Signs

172. The Corps of Engineers uses many other types of signs besides those associated with trails. In addition to giving directions and regulations, some of these signs may be used to present an effective interpretive message. For example, a sign may be placed near a swimming area to inform swimmers of the number of drownings that have occurred and what can be done to prevent such tragedies in the future.

173. However such signs are used, there are several things to keep in mind. One important consideration is to avoid oversigning or "sign pollution." Several separate signs located together along the road leading into a recreation area are not only visually annoying and a potential traffic hazard, but also are very unlikely to be read. Other factors to consider are:

a. Make certain the interpretive message is needed.

b. Locate the signs at points of maximum visitor contact.

c. Use friendly and informal messages and make them readable.

d. Use simple lettering and durable materials.

e. Do not use all capital letters in the text. This makes reading difficult.

f. Remove obsolete signs.

g. Make sure signs to be read from automobiles have no more than three lines of lettering, two inches or greater in height.

h. Replace or repair vandalized signs as soon as possible.

Bulletin boards

174. Bulletin boards act as a park newspaper, presenting announcements of interpretive programs, rules and regulations, safety messages, available activities, and important phone numbers (Figure 31). As such, much attention should be paid to the construction, design, and layout of bulletin boards. In regard to these tasks, one source of information that Corps interpreters may find useful is Machlis and Machlis (1974). The following points summarize this publication:

Figure 31. Bulletin boards permit two-way communication between visitors and the Corps and among the visitors themselves through the posting of rules, area maps, activity schedules, suggestion boxes, and space for messages. Photo courtesy of Lake Shelbyville

a. Make the bulletin board simple, sturdy, compatible with natural settings, and protected from rain and sunlight by an overhanging roof or lockable glass door.

b. Locate them near a popular place where people can congregate. If near a road, allow space for vehicles to pull out of traffic.

c. Place a friendly welcome at the top.

d. Lay out the board by distinct categories, headlining each with bold letters.

e. Instead of just posting regulations, try to explain why certain ones are necessary.

f. Provide a space for visitors to leave personal messages, but keep it from becoming cluttered.

g. Place items of interest for small children near the lower part of the board.

h. Use pictures, illustrations, and colors whenever possible to make the board more attractive.

Publications

175. Interpretive publications can be an effective means of conveying the project story. They should not be relied upon too heavily,

but used to support the overall interpretive objectives. These publications include project brochures, trail leaflets, and literature on boater safety (Figure 32). Publications are usually provided free of charge. However, with the high costs of printing, the visitor may be asked to return the leaflet to the dispersal box or some nominal change may be necessary. The word "nominal" is stressed because the main goal is to get the material in the hands of the visitor, not to cover all the costs.

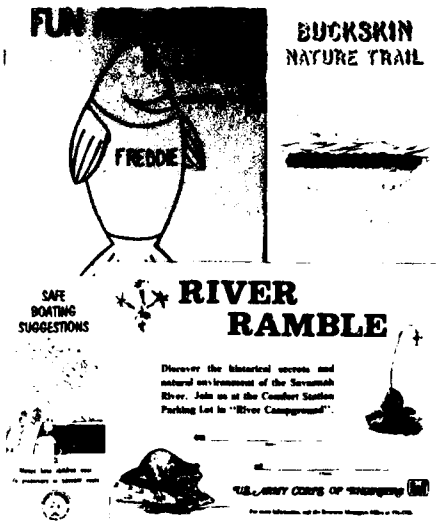


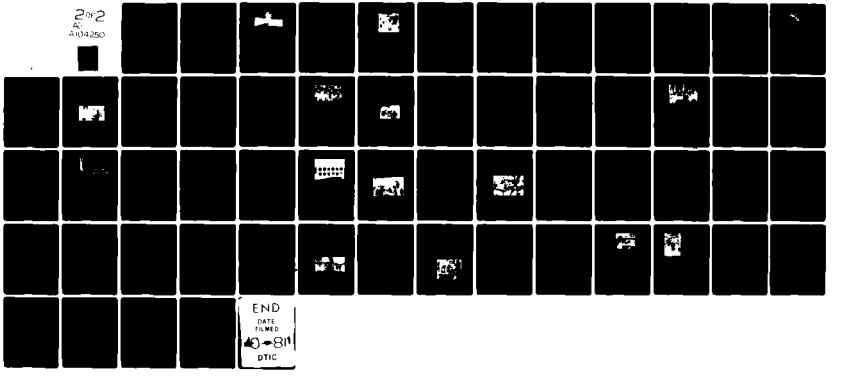
Figure 32. Corps publications come in many forms including pamphlets, fliers, coloring books, and project maps. Publications of the Vicksburg District, South Atlantic Division, and Pittsburg District

176. Advantages. Publications hold several distinct advantages over other interpretive media. The visitor has something to carry and read at leisure. Publications can be taken home to re-read or be mailed as requested to inform visitors about the project before they arrive. They may be used as background material to supplement other interpretive programs onsite. With publications, the same message can be written at different levels for different audiences. Finally, publications have a great potential for providing much depth and detail.

177. Disadvantages. The extent to which publications are read or understood is not known. For some visitors, publications have little or no value at all. In addition, publishing costs are sometimes very high.

178. Design criteria. Unfortunately, many visitors receive their first, and sometimes only, impression of the Corps through agency publications. Thus, an extra effort should be made to produce publications

AD-A104 250 ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS F/G 5/1
A GUIDE TO CULTURAL AND ENVIRONMENTAL INTERPRETATION IN THE U.S--ETC(U)
AUG 81 D B PROPST, J W ROGGENBUCK
UNCLASSIFIED WES-INSTRUCTION-R-81-1 NL



that are both pleasing and effective. Physical layout, color, texture, size of letters, size of paragraphs, spacing, margins, letter style, and use of illustrations all affect whether or not a particular message is interesting to the visitor.

179. The Jacksonville District is just beginning a study to determine what effect these factors and such elements as color, type of paper, and map detail have on people's preferences for Corps publications. Until such information is available, however, the material and references presented under "The Printed Word" (Paragraph 160) and the section on interpretive trail messages should be reviewed.

180. Two important factors to consider when developing a publication are the readability and human interest of the text. People can read very complex material, but usually what they want to read is something written simply. A method developed by Flesch (1949) and discussed by Cowing (1961) assesses text readability and human interest by considering the average number of syllables per 100 words, average number of words per sentence, and number of personal nouns and sentences. Hunt and Brown (1971) applied this technique to 18 visitor publications of the National Park Service, U. S. Forest Service, and Bureau of Land Management. They found that the readability of the text was generally difficult and human interest was generally poor. Little changed in 8 years following this study. Fazio (1979) applied the Flesch method to 115 publications from the U. S. Forest Service, the National Park Service, and the U. S. Fish and Wildlife Service. He found that publications from all agencies were difficult to read and contained little human interest. While the authors are only speculating, it is suspected that the same problems plague many Corps publications as well. To the extent that this is true, the effectiveness of Corps publications is bound to be limited. While only a rule-of-thumb, the Flesch method may provide some valuable insights into developing effective publications for the Corps.

181. Finally, there is no substitute for a pleasing publication layout. Layout refers to the placement of the text and artwork in relation to each other and to the background material. It does not matter whether or not the arrangement is symmetrical or asymmetrical, as long

as each element is given proper emphasis and all elements together present a unified story.

Visitor centers

182. Very little detail on design criteria for visitor centers will be presented here as most of the design work is done by private firms. However, a word of caution concerning private firms is needed here. One of the major problems with interpretive planning to date is that the architect-engineer and landscape architect have been performing planning functions (e.g., visitor center design) with no interpretive expertise or interpretive personnel on their staffs (Cherem 1980).* In some cases, this results in visitor centers or exhibits which are non-functional or ineffective in conveying interpretive messages. To avoid wasting time and money, the Corps interpretive staff needs to have an active input in the visitor center and exhibit design process.

183. Some design criteria are presented in Appendix A (Attention-Holding Techniques) and will not be repeated here. Useful references for additional detail include: Hanna (1974), Sharpe (1976), and Guthe (1969, 1973). In addition, many innovative ideas for visitor center design are included in Appendix A of the Lake Shelbyville Master Plan (U. S. Army Engineer District, St. Louis 1980a) and in publications by the U. S. Army Engineer Districts, St. Paul (1978) and Omaha (1980).

184. Perhaps the most crucial issue is whether or not a large visitor center costing hundreds of thousands of dollars is needed in the first place. The answer, of course, depends upon the objectives of each particular project (Figure 33). For instance, the visitor center may be seen as a springboard for the visitor's project experience and as a place for answering his or her physical and intellectual needs. In this case, perhaps all that is needed is a small, comfortable building with seats, restroom, an information desk, a project orientation model, and a small exhibit room with modular displays that can be changed to tell different stories.

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* Personal Communications, 1980, G. J. Cherem, Interpretation Central, Ann Arbor, Mich.

Figure 33. Visitor centers can introduce the visitor to the project and serve as a starting point for other interpretation services. Photo courtesy of Kansas City District

Exhibits and displays

185. An important distinction that needs to be made is the difference between "interpretive" and "informational" or "trade show exhibits." As is true of visitor centers, many exhibits are designed and built each year which are interpretive only in name and do not even make good informational exhibits (Cherem 1980).* Good physical design does not necessarily mean good interpretive design. Cherem (1979) makes several recommendations for creating an interpretive exhibit:

a. Provide for active involvement of the viewer through physical manipulation of the exhibit, through the incorporation of a number of the viewer's senses in experiencing the exhibit, and/or through the introduction of original objects and as much three-dimensional depth as possible. Indeed, with relation to this factor, Washburne and Wagar (1972) stated, "compared with inert flatwork exhibits, dynamic multisense presentations may permit greater involvement with exhibit subject matter."

b. Provide, whenever possible, objects and concepts high in intrinsic interest. In addition to the intrinsic interest caused by exhibit (and concomitant viewer)

* Personal Communications, 1980, G. J. Cherem, Interpretation Central, Ann Arbor, Mich.

movement, certain objects (e.g., large, unusually shaped, brightly colored), and certain topics (e.g., life-death issues, and certain animal species such as snakes and insects) create an immediate fascination on the part of the viewer.

c. Relate to the everyday life of the viewer, both in the objects and label copy presented. Indeed, Tilden (1967) states, "Any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile." A blue-collar worker, for example, will find an exhibit on tree xylem far more relevant if it is expressed in terms, say, of water pressures in a home plumbing system, than if it is expressed in the classic physics of evapotranspiration.

Furthermore, in designing interpretive exhibits, incorporate the guidelines for developing interpretive programs described earlier in this part (i.e., active and colorful language and nonverbal communication technique).

186. Burlingame (1980) presents additional guidelines for decisions involving various aspects of exhibit planning and design:

a. The audience should be determined before writing the text for the exhibit. A useful technique for holding the interest of visitors of all levels is to use three sources of information in each exhibit: the exhibit title, a general description about the items in the exhibit, and more detailed data about these items.

b. The length of the text as well as the lines within the text should be kept short for greater readability.

c. The text should be located 3 to 5 ft from the floor for ease of reading. Steps for children are helpful.

d. The style of type face and the color of the letters in relation to the background also affect readability. Generally, type with script and dark letters on a light background are easiest to read.

187. Exhibits and displays do not necessarily have to be located in visitor centers. They may be effectively used in such places as scenic overlooks, boat launching areas, or traveling vans (see U. S. Army Engineer District, St. Louis 1980c). Displays may be either fixed permanently in place or capable of being moved to schools, civic group meetings, and other locations (Figure 34).

Figure 34. Mobile exhibits can be used to communicate the project's interpretation message to residents of the surrounding area. Photo courtesy of South Atlantic Division

188. With exhibits the interpreter has the advantage of being able to display original objects to visitors who may view and read at their own pace. By reducing objects to scale, dioramas can be used to bring large natural features indoors. In addition, valuable artifacts may be viewed and protected at the same time.

189. An advantage of wayside exhibits over visitor center exhibits is their usefulness in interpreting project features in natural settings. Thus, they are usually more effective in gaining visitor interest and understanding. Yet, if there are many repeat visitors, wayside exhibits may be used very little. Vandalism can also be a problem.

190. Exhibits in general have several disadvantages. To obtain the desired information, visitors are required to stand and read, activities at which they are not apt to spend much time. Furthermore, exhibits may not be the best means of conveying long, detailed narratives.

Too many stimuli in an exhibit may confuse or frustrate the visitor and poor planning may produce exhibits that compete with one another. Consequently, exhibits should be designed to contain a limited number of objects, messages, and illustrations and should complement the remainder of the exhibits. In addition, exhibit messages should be supplemented with other media, such as slide shows, movies, and guided tours.

191. Viewing time. Shiner and Shafer (1975) observed how long visitors to the Adirondack Museum (Blue Mountain Lake, New York) either looked at or listened to 14 different exhibits. The time visitors spent at these exhibits was found to be only 15 to 64 percent of the entire time needed to receive the message. In general, the longer the message, the less time was spent. The more realistic exhibits, however, elicited the highest percentage of required viewing or listening time. Those used closest to the required amount of time were a diorama window overlooking the lake, a diorama of a hermit's camp, and an old vehicle exhibit. Another "popular" display was a sequential narrative and pictorial history of the geology of the area. Those exhibits where people spent only a small percentage of the time necessary to receive the message included a woodland painting, an exhibit of hunting rifles, and a display introducing a series of Currier and Ives prints. While the authors do not go into much detail, it is speculated that the exhibits viewed the least were perceived as being boring or were not related to visitor motives for being there. For instance, the exhibit on guns was rather plain with a good deal of small print to read. Also, the "popular" exhibits generally oriented the visitor to the area.

192. Design considerations. Some guidelines for good exhibit design are:

a. Use small amounts of text; too much text detracts from the exhibit and reduces visitor ambition to read.

b. Avoid oversized or crowded lettering.

c. Use a simple form of artwork; it should enhance the exhibit, not detract from it.

d. Choose background colors so that they complement text and illustration colors. Light tans and greys are good neutral background colors that can be used with just about any color of lettering or illustration.

e. Enhance simplicity and unity of thought by using effective writing techniques, connecting lines, and enveloping shapes (e.g., circles).

f. Consider using a leaflet to supplement the exhibit room message.

g. Use verbal message repeaters or headphones to involve the sense of hearing. However, long messages should be avoided.

193. Flexibility. An additional word about exhibits is that they should be as flexible or modifiable as possible (Minahan 1980).* In other words, project personnel should be able to alter an exhibit in a relatively short period of time. This is particularly important for those Corps projects that sustain a substantial amount of repeat visitation. Minahan notes that "a common fear concerning modifiable exhibits is that they will appear 'make-shift,' unprofessional." This does not always have to be the case, however. The Interpretive Prospectus for the Lake Sharpe Visitor Center (U. S. Army Engineer District, Omaha 1980) gives some ideas for the design of modular exhibits, sections of which can be removed, modified, and replaced.

Summary

194. In this part, various types of interpretive media, their relative advantages and disadvantages, and design criteria have been described. Only general guidelines were presented. The interested Corps interpreter or manager will need to supplement the material presented with past experiences and information from additional references listed at the end of this part.

195. During the process of reviewing the literature for this part, it soon became evident that there is a lack of research results concerning people's motivations for attending various interpretive programs. In other words, what media and topics do people prefer and why? Until more motivational research is conducted, Corps projects should

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* Personal Communication, 1980, J. Minahan, U. S. Army Engineer District, Omaha; Omaha, Nebr.

continue to use a variety of methods to achieve their interpretive objectives and to satisfy the needs of their diverse clientele.

196. Likewise, there has been little research into what methods are the most effective in terms of changing attitudes, knowledge, and behaviors. This is why it is important for Corps personnel to evaluate in some manner each of their interpretive programs. Methods for conducting such evaluations are covered in the last part.

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SELECTING AND TRAINING INTERPRETIVE PERSONNEL

197. The Corps needs effective interpreters to plan interpretive programs and developments, to manage interpretive facilities, to conduct interpretive programs and evaluate their benefits, and to increase organizational and public support for interpretive programs. Much has been written about the appropriate training and personal attributes of the effective interpreter (e.g., AIN Task Force 1969; Mahaffey 1973; Cherem 1975a, 1975b, 1977; Elliot 1976; Risk 1976; Sharpe 1976). The purposes of this chapter are to identify desirable training, personal characteristics, and field experience of Corps interpreters. A discussion of efficient ways to locate and identify individuals who have these necessary qualifications follows. The chapter ends with guidelines for in-service training of Corps interpreters. Discussion will be of a general nature. It is realized that ideal selection criteria, especially with respect to appropriate training, will vary depending upon the particular needs of the individual water project.

Desirable Training

198. Interpreters employed by the Corps should possess the knowledge or skills listed below. Typically, these characteristics are obtained through college curricula, short courses, in-service training, and field experience. Certain of the qualifications listed below must also be required of seasonal interpreters. Where appropriate, these will be indicated. As a general rule, the more of these skills an

interpreter possesses, the more qualified s/he will be for a position with the Corps.

In-depth knowledge
of one subject area

199. While individuals with a variety of educational backgrounds are suitable for Corps interpretive positions, any interpreter must have a solid knowledge base in at least one relevant subject area. This is to ensure accurate interpretation. Training might be in one of the natural or physical sciences e.g., zoology, botany, aquatic biology, limnology, geology, astronomy, ichthyology, mammalogy, ornithology, herpetology, or entomology. It might also be in the humanities or the social sciences. For example, depending upon the resource characteristics of a given water project, someone with specialization in history, archaeology, or anthropology might be desirable. Finally, the potential interpreter might possess in-depth knowledge of natural resource conservation, human ecology, or resource management.

Balanced educational program

200. The interpreter must work with a variety of professionals within the Corps and meet a diverse public. Given this, the interpreter must speak a variety of professional languages. The prospective interpreter should have supplemented his specialty with courses in such areas as other natural, physical, or social sciences, the humanities, business, public administration, or landscape architecture.

Ecological or holistic perspective

201. Tilden (1967) calls for the interpreter to present a whole story, to demonstrate how the parts interact to make the whole, and to show how the whole supersedes the parts. This advice is most appropriate for Corps projects, where management includes entire ecosystems with man as an integral part. Potential Corps interpreters should therefore demonstrate an ecological perspective in their academic background and their attitude. Formal coursework in ecology is desirable; field study is helpful; and experience as a working member of a multidisciplinary resource planning team often provides the holistic perspective.

Communication skills

202. The ability to communicate is an absolute must for both permanent and seasonal Corps interpreters (Figure 35); this skill is often not given the importance it deserves when potential applicants for interpretive positions are reviewed. It matters little if an interpreter has complete information about an ecosystem if he or she is unable to communicate that information to the visiting public in an interesting and entertaining fashion. The Corps interpreter should have coursework in writing, especially expository writing, and in speech. Coursework in drama, photography, graphics, music, or the use of audiovisual equipment is also desirable. Applicants for interpretive positions should be asked to demonstrate accomplishments in one or more of these disciplines prior to employment by the Corps.

Figure 35. Corps personnel with interpretation duties, whatever their educational background, must be able to communicate effectively. Photo courtesy of Nashville District

Knowledge of human behavior

203. Interpreters are public servants. They exist to provide entertaining, informational, and educational services to the visiting public. In the case of the Corps, their role is to tell the resource management story in an informative and enjoyable manner. To accomplish this task they must know something about the visitors, e.g. their socio-demographic background, their motives for coming to the site, their

attitudes toward resource management, and their individual and social behavior while at the site. Academic coursework in the social sciences (especially sociology and psychology) and past work experience in public contact positions commonly provide an adequate understanding of human behavior.

Knowledge of managerial realities

204. It is important for the Corps interpreters to be a participating member of the entire project planning and management team. Interpretive positions are being redefined to include responsibilities in broader Corps functions. Given this, and the fact that interpreters may be the only Corps employees that visitors see, interpreters must know the policies, goals, and objectives of the agency; the legislative and fiscal constraints; the organizational structure of the agency; their interpretive role in the agency; and the relationship between the interpretive role and other administrative functions. Past training in such areas as public administration and political science and/or previous work experience in public agencies is desirable.

Interpretive coursework

205. Several colleges and universities currently offer coursework, options, or majors in environmental interpretation. Students in these programs learn principles of interpretation as applied to resource management situations and typically have actual practice in giving interpretive programs, preparing interpretive master plans, designing interpretive exhibits, planning interpretive centers, and evaluating program effectiveness. These students have a deep appreciation for the differences between leisure audiences and those found in traditional eductional settings. Consequently, they are more likely to develop communication approaches suitable to the motivations and expectations of visitors at Corps projects. Given the availability of individuals with these skills, the Corps should give increased consideration to their employment.

Ability to evaluate
program effectiveness

206. With increased public participation in resource planning and management and increased public scrutiny of the allocation and use of tax

dollars, there is a great need for interpreters to demonstrate the benefits of their programs. Interpreters must demonstrate whether or not their program objectives are appropriate, and then evaluate the extent to which programs are reaching their objectives. To accomplish these tasks, knowledge of existing literature and some training and/or experience in social and behavioral research methods are desirable.

Field practicum or internship

207. Some colleges and university curricula in interpretation include a field practicum or internship. Other universities require, assist, or encourage students to obtain summer positions in interpretation. If this fieldwork includes the performance of important interpretive tasks and is conducted under the supervision of a qualified interpreter, it can be most helpful in developing and polishing the skills of the novice interpreter. Such an experience helps the student know if interpretation is the right profession for him or her, and supervisors can assess performance under job conditions. The Corps should give increased consideration to individuals who have successfully completed such supervised field experiences.

Suggested curriculum for interpreters

208. The tabulation below provides suggestions on the percentage of coursework in each of the nine skill areas discussed above that the

Skill or Knowledge	Coursework Emphasis* percent
Area of specialization	25
Program balance	10
Ecology (holistic perspective)	5
Communication	20
Human behavior	10
Managerial realities	5
Interpretive methods	10
Research methods (evaluation)	5
Field experience or internship	10
	100

* Coursework emphasis should be viewed as suggestions only. Interpretive objectives and needs at individual Corps units may necessitate a change in program emphasis.

Corps interpreters should possess. The coursework emphasis should be viewed as suggestions only. Perhaps the ranking of the various skills is more important than the actual percentages.

Desirable Personal Characteristics

209. While appropriate academic coursework and/or field experience are necessary for effective interpretation, they are not necessarily sufficient. An interpreter may know the story well, but may be wholly ineffective in relating that story to the visiting public. Given this, the Corps must look beyond the educational qualifications of prospective interpreters. They must also consider the personal characteristics of applicants. Cherem (1975a, 1975b), Risk (1976), and Sharpe (1976) have listed and discussed the desirable personality and behavioral characteristics of interpreters. The following list has been adapted from the work of these authors to better meet the needs of the Corps.

Gregariousness

210. The Corps interpreter exists to provide services to people. As such, s/he must have an outgoing personality and must enjoy interacting with people.

Enthusiasm

211. Enthusiasm helps maintain morale and increases the effectiveness of public contacts (Figure 36). This trait is especially useful for interpreters since their function often has a shortage of staffing and financial support, often occurs in inclement and difficult conditions, sometimes entails repetitive presentation of the same or similar programs, and generally involves continual contact with the visiting public. Also, a communicator who really believes in his or her message may be more effective in influencing audience opinion (Ham 1979).

Self-confidence

212. Three characteristics of the interpretive role in the Corps make self-confidence a valuable personality trait. The Corps interpreter is a host at the resource area. As such, s/he must meet visitors easily and make them feel at home in what is sometimes a foreign

Figure 36. Enthusiasm and gregariousness make Corps personnel more effective in working with the public. Photo courtesy of Nashville District

environment. In public contacts and programs the interpreter should give the feeling of being in control of self and the situation. Secondly, the Corps interpreter often has the freedom to develop his or her own program. The confident interpreter meets this challenge with little need for supervision. Finally, unexpected events such as storms or accidents can occur during interpretive programs; the confident interpreter helps the public through these adverse conditions without panic.

Credibility

213. The Corps interpreter is the agency's primary contact with the visiting public. As such, the image of the agency is greatly influenced by the perceived credibility of the interpreter. The interpreter who speaks with frequent hesitation, verbal discontinuities, and frequent use of such words as "perhaps," "I guess," and "as you know," likely suffers a loss in visitor confidence. At the same time, the interpreter who attempts to cover inadequate knowledge with a barrage of words also has little credibility. The Corps should avoid both of these traits when recruiting for interpretive specialists.

Creativity

214. While creativity is a valuable talent in any profession, it is especially desirable in the art of interpretation. The interpretive

field itself is relatively young, audiences are diverse, and interpretive problems vary greatly from one Corps project to another. Few established standards for solving interpretive problems exist. The creative interpreter meets the specific interpretive problem, draws upon a variety of educational and field experiences, and proposes a solution that is specific to the situation.

Warmth

215. The interpreter with warmth is polite, smiles a lot, greets the visitor easily, relaxes with the audience, and generally enjoys interacting with the public (Figure 37). Most visitors enjoy being with the warm interpreter; this enhances the effectiveness of his or her message.

Figure 37. Warmth and a sense of humor aid the interpreter in putting the visitor at ease and in communicating effectively with him or her. Photo courtesy of Ice Harbor Lock and Dam

Articulateness

216. The articulate interpreter expresses ideas clearly and smoothly, pronounces words correctly, enunciates clearly, uses proper phrasing, and speaks in flowing sentences. Understandable speech is necessary if the audience is to comprehend and appreciate what the interpreter has to say (Sharpe 1976).

Sense of humor

217. A sense of humor serves the interpreter well on two accounts.

First of all, the visiting public likes an interpreter with a sense of humor, and a well-liked speaker is a more effective communicator. Secondly, a sense of humor helps the interpreter maintain good spirits on those days when the best program plans falter, when work conditions are difficult, or when the public is particularly demanding.

Pleasant appearance and demeanor

218. Much has been written about the need for persuasive communicators to possess pleasant appearance and demeanor. Good grooming and erect posture help create positive images of the interpreter; slouching and sloppiness have the opposite effect (Sharpe 1976). Corps interpreters should be well groomed and neatly dressed. They should not, however, look so different from the visitors as to make them feel uncomfortable.

Desirable Field Experience

219. Knowledge of interpretive subject matter, principles, and techniques and possession of the personal attributes discussed in the previous section should be considered adequate, but minimum qualifications for employment as a Corps interpreter. Individuals who have these characteristics but who also have past successful working experience as an interpreter should be given greater consideration.

220. Such past field performance has sharpened the skills of the interpreter. S/he has faced the public's questions about the interpretive story; tested interpretive principles in a variety of leisure settings; viewed visitor response to different kinds of interpretive media; learned the organizational structure, opportunities, and constraints of public agencies; and often acted as a member of interdisciplinary teams to reach broad agency goals. These experiences foster competence and realism, and lessen the in-service training period for the Corps.

221. Such field experience also permits the Corps' personnel officer to review the applicant's past performance evaluations, and this can be invaluable. However, Corps employers should make certain that the evaluation concerns competencies and responsibilities relevant to the position to be filled. For example, a skilled interpretive

planner does not necessarily give effective interpretive programs. Also, the Corps employer should determine the position and interpretive knowledge of the applicant's supervisor who has made the performance evaluation. An applicant's immediate supervisor is most qualified to evaluate on-the-job performance, and a telephone conversation with that person is desirable.

Locating Qualified Interpreters

222. Two sources of qualified interpreters exist: (a) agencies and organizations that employ professional interpreters, and (b) colleges and universities that have curricula or coursework in interpretation.

Agencies and organizations with interpreters

223. When a vacancy for an interpreter exists, the Corps manager with his personnel officer should send a position announcement to all agencies and organizations that employ interpreters. These include other Corps units, the National Park Service, the U. S. Forest Service, and the Bureau of Land Management; state Departments of Conservation; regional park authorities; and even municipal nature centers. Such private organizations as the National Audubon Society might also be contacted.

224. One way to locate interpretive agencies and specialists is through the professional interpretive organizations: the Association of Interpretive Naturalists (AIN), the Western Interpreter's Association (WIA), and *Interpretation Canada* (IC). The addresses of these organizations are as follows:

The Association of Interpretive Naturalists, Inc.
6700 Needwood Road
Derwood, Maryland 20855

Western Interpreter's Association
P. O. Box 28366
Sacramento, California 95828

Interpretation Canada
Box 160
Aylmer
Province of Quebec
J9H 5E5

These organizations publish position vacancies in newsletters to their membership, and Corps managers should utilize these services.

Colleges and universities

225. Colleges and universities are training highly qualified interpreters at this time; Corps resource managers need to actively recruit those with the greatest potential. As a first step, the resource manager should ascertain whether or not colleges and universities located near his or her project have curricula or coursework in interpretation. If such programs exist, s/he should contact the program's professors and students. S/he might give the professors a tour of the project, give a guest lecture in one of the courses, or speak at an appropriate student curriculum club. The purpose of such meetings would be to let the university know what the Corps is doing in resource management, that the Corps has an interpretive function, and that there is interest in improving the quality of interpretation. Through these contacts, the Corps manager can get to know the most talented prospective interpreters.

226. A second step is to work with the Office of Personnel Management (OPM) and the prospective interpreters in the job application process. The OPM should be provided with the appropriate coursework and/or experience criteria for interpretive specialists as described earlier in this chapter. The OPM could then identify lists of individuals on appropriate rosters who meet the minimum criteria.

227. Corps managers and/or personnel officers should then help students apply for consideration on appropriate rosters and registers. Students and their faculty advisors often lack information about this process. It may also be necessary to make suggestions for curriculum changes to the faculty.

228. Once applications are received, the Corps manager with his or her personnel officer should evaluate the applicants' academic coursework and previous work experience in terms of the training criteria described earlier. Those who most clearly meet the specified criteria should be given greatest consideration for hiring.

229. Finally, the Corps manager and his or her staff should interview the top candidates for any interpretive position. This permits an

assessment of the personality characteristics of the candidate. The applicant might also be asked to present examples of his or her own interpretive products, such as interpretive plans, exhibits, or slide programs. Ideally, the interview should be done onsite; it should involve a variety of activities for the candidate and should be long enough to permit the candidate to relax and to become familiar with the project setting. If an onsite interview is not possible, a telephone interview can be helpful. The telephone interview should be carefully planned so that the conversation sheds light on the previously described personal attribute criteria. Also, if a telephone conversation is used, added emphasis should be given to the recommendations of the applicant's appropriate references.

In-Service Training

230. In-service training can serve three vital roles for the Corps: (a) sharpening the interpretive skills of seasonal or temporary employees; (b) providing basic interpretive skills for Corps employees without previous training; and (c) keeping professional interpreters up-to-date on the latest research and developments (Figure 38).

231. Several mechanisms might be used to accomplish in-service training, and one or more of the following is recommended. Corps interpreters might develop a newsletter similar to the National Park Service's "In Touch" to keep fellow interpreters informed of innovations and of what works and what does not. A preliminary effort has been made at WES. RECNOTES, an information exchange bulletin produced by the Recreation Research Program, includes a section entitled "Visitor Perception and Interpretive Services" (VPIS). The VPIS column contains information on interpretation and environmental education. Contributions are accepted from Corps personnel at the Division, District, and project levels.

232. The journals and newsletters published by professional interpreters' organizations can also help Corps staff keep up-to-date; Corps interpreters should be encouraged to subscribe to these

Figure 38. In-service training for Corps personnel with interpretation duties can develop or refine their interpretation skills. Photo courtesy of Vicksburg District

publications. For example, the AIN's Journal of Interpretation, the WIA's Interpreter, and IC's Interpretation Canada publish techniques papers, information on innovations, "how-to-do-it" articles, book reviews, and research manuscripts.

233. The permanent staff with interpretation duties at Corps projects might also develop "Interpreter's Guides" for use by seasonals during their employment period. Examples of such guides within the Corps of Engineers include: The U. S. Army Engineer Districts, St. Louis (1980), Nashville (1979, 1980), and Pittsburgh (undated). These guides might provide the groundwork for a week-long training session, which would include lessons on the Corps' role in water management, interpretive subject matter, program objectives, understanding the audience, interpretive media, and interpretive evaluation. Emphasis during the training period should be on the development, presentation, and evaluation of interpretive programs given by the seasonals.

234. Finally, annual workshops or short courses on interpretation might be given at the District or Division level of the Corps. Such training sessions might be offered by interpretive consultants,

university faculty, extension specialists, and/or agency interpreters. They would cover topics similar to those included in the "Interpreter's Guide" discussed above. Permanent and perhaps seasonal interpreters from several water projects would attend and benefit from these centralized training sessions. An informal format should be used to foster the sharing of ideas by Corps personnel representing the various water projects.

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EVALUATION OF INTERPRETATION

235. This chapter addresses four important questions about the evaluation of interpretation: why, what, when, and how. The goal is to demonstrate the benefits of evaluation for the Corps interpreter and to provide guidelines on how to accomplish effective evaluation.

Why Evaluate?

236. Several authors (e.g., St. Clair 1972; Putney and Wagar 1973; Wagar 1976; Wagar, Lovelady, and Falkin 1976; Reyburn 1977; Dawson and Roggenbuck 1979; Knudson and Morfoot 1979; Lime 1979; Roggenbuck 1979; U. S. Army Engineer District, Sacramento, undated) have discussed the importance of evaluation of interpretive programs. While they have listed several reasons for evaluation, five appear most applicable to Corps interpretation: the need for accountability, the need for greater support in the agency, the need to assess the appropriateness of objectives, the need to determine whether objectives are being met in a cost-efficient manner, and the need to determine why objectives are or are not being met.

Need for accountability

237. In recent years, the American people have become increasingly skeptical of the capability of public resource managers to provide a continued flow of goods and services in an efficient manner. This public

skepticism applies to interpretation also. Given this, the public is taking a critical look at the return on tax dollar investment. Elected representatives of the people are asking resource agencies like the Corps to measure and quantify the benefits of their programs.

238. The goal of the current administration to reach a balanced budget and the continued high rate of inflation have also reduced the number of dollars available for public service programs. This economic situation will likely remain the same or deteriorate in at least the short-term future. Therefore, the least cost-effective programs will be cut. Interpreters must be able to evaluate and demonstrate the benefits of their programs.

Need for greater agency support

239. Presently, when facing cuts in budgets, top administrators of resource management agencies frequently view interpretive services as nice, but certainly not necessary (Bernard 1977). Professional interpreters as a group, although experienced in methods of effective and persuasive communication, have been only moderately successful in convincing decisionmakers of the value of their programs to the taxpaying public (Dawson and Roggenbuck 1979). Corps interpreters should take two steps to remedy the situation. The first is to become more actively involved in the total Corps resource management effort. As stated earlier in this manual, Corps interpreters need to know the objectives and functions of other divisions in the agency, and work as a team to help reach these objectives. As full-fledged members of the team, they will possess greater credibility. Secondly, and more pertinent to the discussion here, interpreters need to be able to show their administrators the results of their efforts. Other administrative units, e.g., the maintenance section, are able to show the output of their efforts in visible, concrete terms. While it is currently difficult for interpreters to demonstrate their outcomes in similar terms, it is still necessary to evaluate their programs in a way that is meaningful to management.

Need to assess
appropriateness of objectives

240. Earlier in this manual the importance of objectives was

discussed and a process for formulating objectives was recommended. At the same time, the need for evaluation was described. One of the necessary functions of evaluation is to periodically assess the appropriateness of objectives. The Corps resource management system does change through time, and sometimes change in interpretive planning and programming objectives is also necessary. There may be a change in agency goals and policies. For example, in recent years the Corps has taken on a much larger role in total water resource management; the construction and development role has declined in importance. This will likely result in a revision of interpretive objectives.

241. The resource itself may change, or knowledge of the resource may increase. For example, a windstorm may topple trees at the project causing succession to begin anew. Archaeologists on the water project may discover evidence of prehistoric Indian habitation. Both of these events might well necessitate a change in interpretive objectives.

242. Finally, project visitors and/or their preferences may change. The recent sharp increase in reservoir use by sailboaters is an example. Sailboaters likely represent a clientele group with different socioeconomic backgrounds, environmental perceptions, and preferred experiences than powerboaters. Different interpretive objectives, themes, messages, and media are likely appropriate for this new user group.

Need to determine
whether objectives are
being met in a cost-efficient manner

243. Perhaps the most frequent and most important use of evaluation by Corps interpreters is determining whether current planning and programming objectives are being met. Typical interpretive objectives call for a change in audience enjoyment, knowledge, attitude, behavior, or appreciation of the resource. If the interpreter cannot assess whether such a change has taken place, the cause of that change, and the cost of producing the change, then s/he has no way of knowing the benefits and cost-effectiveness of interpretive programs. Without this evaluation, the interpreter cannot compete well with other organizational units for scarce funding or staffing.

Need to know reasons for program effectiveness or ineffectiveness

244. If Corps interpreters are going to provide interesting, enjoyable, and/or educational experiences for project visitors, they must not only know what works but also why it works. If a program fails, they must know why. This knowledge permits program adjustments and improvements to be made in the future. Evaluations of the interpreter's performance, the message itself, and audience characteristics are all necessary.

What to Evaluate?

245. When asked to determine the effectiveness of their programs, Corps interpreters should evaluate one or more of the three important elements of the communication process: the message, the interpreter's performance, and the audience response. The message itself and the interpreter's behavior are only indicators--not precise measures--of relative program effectiveness. The best measure is the response of the audience, and most of the evaluation effort should be placed there. However, since the message and the interpreter's performance can generally be assessed quickly, easily, and early in the program formulation process, and since appropriate audience change appears to depend in part upon the quality of the message and the presentation, these two communication elements should also be assessed.

Interpretive message

246. Interpretive messages, be they the written texts of signs, brochures, or exhibits or the scripts of slide programs or movies, can and should be evaluated early during the development process (Figure 39). Such messages also can be evaluated by a variety of reviewers and long before they are ever presented to the visitor. Assuming the message content is correct, five additional evaluation criteria should be used: length, grammer, layout, characteristics to attract and hold attention, and Tilden's (1967) principles.

247. Interpretive messages at Corps projects must be short. The

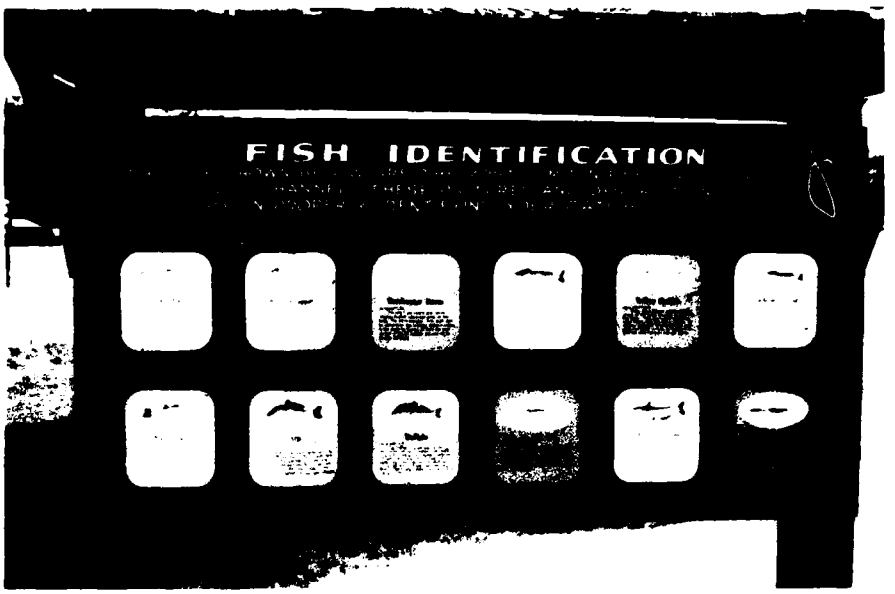

Figure 39. All interpretation messages should be evaluated before and after implementation to ensure their continuing effectiveness. Photo courtesy of Vicksburg District

visitor is in a leisure frame of mind and may not take the time to read or even listen to long passages. In an earlier section, a study by Shiner and Shafer (1975) was described that indicated how little time people spend reading and listening to messages. This same finding is likely to apply to Corps project visitors.

248. Corps interpreters should review interpretive texts for errors of grammar and for problems of layout. Do not squeeze too much text on any given page, for this makes the text appear long and difficult to read. Avoid long sentences and long paragraphs (Flesch 1949). Avoid the use of all capital letters and italics, because they are hard to read. Make good use of a provocative title and the first few sentences of the message to attract and hold attention. This might be accomplished through the use of a discrepant statement, a threat, a promise of reward, the use of contrast (e.g., the use of color contrast), or the use of questions.

249. Finally, the interpretive message should have the following characteristics modified by Cherem (1977) from Tilden (1967):

a. Provoke the curiosity of the audience.

b. Relate to the everyday lives of the audience.

c. Reveal the essence of the subject through a unique viewpoint.

d. Address the whole; that is, show the logical significance of an object to a higher level concept or story line.

e. Strive for message unity or a theme; that is, use a sufficient but varied repetition of cues to create and accentuate a particular mood, theme, aura, or atmosphere.

Interpreter performance

250. Five attributes of the interpreter's performance should be evaluated: organization of presentation, attitude toward the audience, verbal skills, nonverbal skills, and general appearance (Figure 40).

Figure 40. Corps personnel should be periodically evaluated during interpretation programs to determine their effectiveness in communicating. Feedback to the interpreter can aid in improving performance and increasing self-confidence.
Photo courtesy of Lake Shelbyville

251. The effective interpreter schedules his or her time to permit regular preparation for talks and walks. S/he arrives at the site early and informally gets to know the audience. The program has a definite outline, with an introduction that states the theme and attracts attention; a body that covers the important points in an orderly, concise

manner; and a conclusion that summarizes important points and lets the audience know the program has ended. After the program, the interpreter informs the audience about the next program(s) and remains available for questions and comments.

252. The Corps interpreter who is doing the job well enjoys the audience. This is evident from the interpreter's enthusiasm, friendliness, conversational style, and promptness of response to audience cues. S/he quickly establishes eye contact and rapport with the audience and has the ability to adjust the level of the presentation to the particular needs of the audience.

253. The verbal and nonverbal skills of the interpreter should first of all be assessed in terms of both pronunciation and articulation. Pronunciation means the ability to say the words correctly; articulation refers to the ability to pronounce words distinctly and clearly. The pitch, rate, and volume of the voice are also important. The pitch of the voice should be evaluated both in terms of its tone level and its variation. A nervous interpreter sometimes speaks at a very high pitch, one that is difficult to listen to. On the other hand, the bored interpreter often does not vary the tone of his or her voice. Many interpreters feel stage fright and speak too quickly; a few speak too slowly. Speech rate should vary between 100 and 160 words per minute as a means to keep visitor interest and to stress important ideas. Volume should be such that the person in the back of the room or amphitheater can hear the interpreter without strain. Finally, the effective interpreter does not memorize the program. Such a program usually sounds too formal and mechanical; instead the interpreter establishes eye contact with the audience, knows the key points of the presentation, and embellishes upon these concepts in response to individual audience needs.

254. The general appearance of the interpreter influences audience response and therefore should be assessed. The effective interpreter is well groomed. His or her uniform is well fitting, clean, pressed, and in good condition. S/he stands erect, poised, and smiles frequently. S/he does not have speech or behavior mannerisms that distract attention.

Audience response

255. Corps interpretive programs are provided for the benefit of project visitors. Therefore, an evaluation of audience response is the most precise measure of program effectiveness (Figure 41). What audience response to measure depends upon individual program objectives. Also, there are practical and theoretical problems encountered when attempts are made to measure audience change. Measures of visitor response can disrupt recreational experiences. Often the desired visitor change is internal and therefore difficult to measure. Even if a change is identified, the cause is difficult to trace.

Figure 41. Audience response can be used to evaluate the effectiveness of a program in achieving the desired objectives. Photo courtesy of South Atlantic Division

256. Wagar (1976), recognizing these problems, has identified an "obstacle" course to the precise measure of visitor response (Figure 42). Wagar contends that the higher levels of visitor change in the pyramid are dependent upon change in the lower levels. Assessment of change at the lower level is more easily accomplished, and sometimes assessment is possible only at those levels. Wagar therefore calls for the assessment of audience attention to presentation and where possible (and

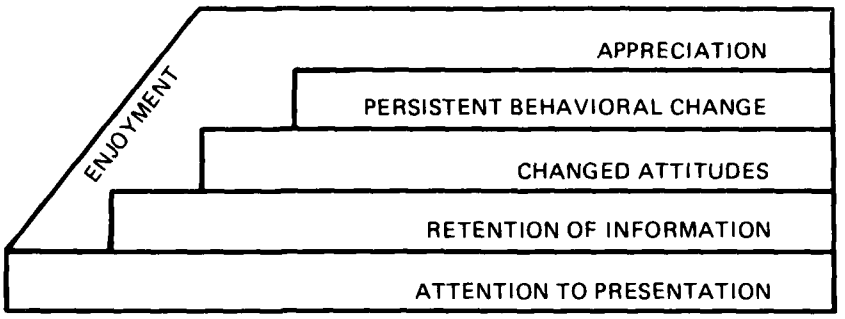

Figure 42. Framework for evaluating audience response to interpretation (adapted from Wagar 1976)

appropriate given program objectives) to proceed to measures of the retention of information, attitude change, persistent behavioral change, and appreciation and enjoyment. This approach appears to meet the needs of the Corps of Engineers and should be used by Corps interpreters.

257. Finally, it is important to periodically evaluate the total interpretive program (Cherem 1979), i.e., the sum total of all interpretive messages (personal and nonpersonal), staff efforts, and audience response. Parts of the program could be very effective, but the overall impact upon the visitor could be a dismal failure. Corps interpreters should be particularly careful not to evaluate only those components of the program which are easiest to measure or which appear to be most successful.

When to Evaluate?

258. Corps interpreters should follow three guidelines when deciding upon the timing and frequency of evaluation. Evaluation should first of all occur as early as possible in the development of the interpretive program (Wagar 1976; Wagar, Lovelady, and Falkin 1976). This permits presentations to be revised and improved before great amounts of time, money, energy, and ego involvement have been invested. Interpretive story lines might be developed during the off-season and evaluated long before the visitor arrives. Verbal presentations might be taped, videotaped, presented before colleagues, or even presented before

small audiences during the off-season or early in the spring. The interpreter's performance could be evaluated and improvements made before the heavy use season. Evaluation of audience response to the interpretive presentation is more difficult to accomplish during early stages of program development. It might be possible to have a small group of people who recreate at the project in early spring evaluate the program, but interpreters should be aware that these recreationists might be very different from those who arrive during the busy season.

259. Evaluation should also occur on a routine basis after the program has been developed. As has already been stated, policies and goals of the Corps may change, the resource or knowledge of the resource may change, and the visitor may change. Any one of these changes might cause a given interpretive program to lose its effectiveness or to become inappropriate. Also, the interpreter's performance may change as the visitor use season progresses. An enthusiastic presentation may become dull as the interpreter becomes bored with repeating the same story. On the other hand, familiarity with the story and increased experience with public speaking may result in more effective presentations. Finally, certain interpretive media like signs, labels, exhibits, and slide or audio tape programs should be routinely checked for vandalism or mechanical failure.

260. It has been stated that interpretive programs should be routinely evaluated, but how often should evaluation occur? While the answer to this question depends upon the reasons for the evaluation, the program or medium evaluated, and the evaluation technique used, it can be safely said that evaluation should occur as frequently as is practically feasible. Dawson and Roggenbuck (1979) have reported that most National Park Service historical areas in the eastern United States in the past never used expert or professional evaluation from outside the agency, quizzed visitors on learned information, used comment columns on guest registers, used suggestion boxes, conducted onsite or take-home visitor surveys, nor interviewed the visiting public. Evaluation by a committee or representative of the agency outside the park was done less than once a year. Evaluation by a chief naturalist, historian, interpreter, peer

interpreters, or structured observation of visitors by one not interpreting at the time only occurred monthly; informal observation of visitor reaction by the interpreter was done more than once a week.

261. Corps interpreters should strive to evaluate on a more frequent basis. For example, observing visitor response to interpretive programs should occur daily; suggestion boxes might be available to the visiting public on a continual basis and comments summarized weekly, and a questionnaire or interview survey of visitor response to interpretive programs might be conducted at about 5-year intervals.

How to Evaluate?

262. While many authors have identified techniques for interpretive evaluation (see references at the end of this part), the listing and description of evaluation methods by Wagar (1976), Wagar, Lovelady, and Falkin (1976), and Vererka and Poneleit (1979) appear most applicable to Corps interpretive programs. The discussion that follows rests largely upon the work of these authors.

263. Thirteen evaluation techniques should be considered potentially useful by Corps interpreters: peer evaluation, auditing by an expert, review by a panel of outsiders, observing audience attention, observing viewing or listening time, time-lapse photography, behavioral measures of preference, observation of behavior, observation of behavior traces, self-testing devices, questionnaires, formal interviews, and informal interviews. When selecting one or more of the 13 techniques on evaluation, Corps interpreters should assess the attributes of the technique, its speed of feedback, its cost, its burden on the visitor and personnel, its safeguards against bias (drawing false conclusions), and its general usefulness and limitations. Table 2 contains a summary of the 13 interpretive evaluation techniques based on these criteria.

Table 2

Rating of Thirteen Techniques for Evaluating Interpretive Presentations*

Rating Characteristics	Technique		
	Peer Evaluation	Auditing by an Expert	Review by Panel of Outsiders
Description	Fellow interpreters within agency evaluate presentation	A highly trained and experienced interpreter, generally from outside the agency, observes and critiques the presentation	Group of people with characteristics similar to the audience evaluates the presentation. Panel members have no training in interpretation
Speed of feedback	Excellent	Excellent	Excellent
Cost	Low	Moderate	Low to Moderate
Burden on visitor	None	None	None
Burden on personnel	Moderate	None	Small
Guarantee against bias	Low to moderate	Moderate	Low to moderate
General usefulness	Useful for evaluating messages, media, and interpreter's performance during program development stages	Useful for evaluating messages, media, and interpreter's performance during program development stages. Provides outside opinion	Useful for evaluating messages, media, and interpreter's performance during program development stages. Provides opinion that represents the audience
General limitations	Evaluates message or interpreter--not audience. Trained interpreters may respond differently than audience	Evaluates message or interpreter--not audience. May respond differently than audience. May be hard to identify and employ the expert	Evaluates message or presentation—not audience. May not adequately represent the audience. May be difficult to get panel together at appropriate time and location

(Continued)

* This table has been adapted in part from Wagar (1976), Wagar, Lovelady and Falkin (1976), and Vererka and Poneleit (1979).

(Sheet 1 of 5)

Table 2 (Continued)

Rating Characteristics	Technique: Observing Audience Attention	Observing Listening or Viewing Time	Time-Lapse Photography
Description	Interpreter(s) scan the audience to determine percent paying attention. Looks at audience eye contact, facial expression, and/or direction individual is facing	Interpreter observes length of time visitors view or listen to the presentation and compares that with amount of time required to completely read or hear it	Camera records use patterns (e.g., travel patterns and attention spans) of visitors on a continual basis
Speed of feedback	Good	Good to fair	Fair
Cost	Low	Low to moderate	Moderate to high
Burden on visitor	None to low	None to low	None
Burden on personnel	Moderate	Moderate	Small
Guarantee against bias	Moderate to good	Good	Good to high
General usefulness	Obtains feedback from audience during presentation. Permits prompt change in interpreter behavior to achieve program goals	Obtains feedback from audience; a behavioral measure of preference; good also for measuring visitor orientation and movement	Records behavior of audience; a behavioral measure of preference; can compress long periods of time into a short summary of visitor behavior for decisionmaking
General limitations	May be difficult to measure attention and identify reasons for attention or lack of it. Assumes attention indicates effectiveness. Requires training	Visitor audience may know s/he is being watched and behave differently. Requires training for interpreter. Cannot observe change in attitude or knowledge	May be invasion of privacy; may be mechanical failure; area covered by one camera is limited; does not record motivations, attitudes, or knowledge

(Continued)

Table 2 (Continued)

Rating Characteristics	Technique: Behavioral Measures of Preference	Technique: Observation of Behavior	Technique: Observation of Behavior Traces
Description	Behavioral measure of interpretive effectiveness based on visitors' choice of activities (e.g., hike vs slide show)	Observe visitors' behavior in response to an interpretive message	Observe evidence of visitor behavior (e.g., amount of litter) in response to interpretive message
Speed of feedback	Good	Good to fair	Fair
Cost	Low	High	Moderate
Burden on visitor	None	None to low	None
Burden on personnel	Moderate	High	Moderate
Guarantee against bias	Moderate to good	High	Moderate
General usefulness	Records audience behavior; identifies preferences for interpretive services; is unobtrusive	Good for measuring the effectiveness of interpretation in solving management problems; accurate measure of audience response	A behavioral measure of interpretive program benefits; good for measuring effectiveness of interpretation in solving management problems; no impact upon visitor
General limitations	Measure of choice, not satisfaction with choice; visitor may know s/he is being watched; does not obtain information on motivations, attitudes, and knowledge	All programs do not call for a behavior change. May not measure change in attitude or knowledge. Visitor may know s/he is being watched and behave differently	All programs do not attempt to change behavior; some behaviors do not leave traces; may not measure change in attitude or knowledge; often difficult to relate interpretive message to behavior trace

(Continued)

Table 2 (Continued)

Rating Characteristics	Technique	
	Self-Testing Devices	Questionnaires
Description	Mechanical device that records visitors' choices and responses to interpretive questions; usually a quizboard	A written set of questions are administered to a sample of visitors to determine enjoyment, knowledge, attitudes, and/or behavior
Speed of feedback	Good to fair	Poor to fair
Cost	Moderate	Moderate to high
Burden on visitor	Low	High
Burden on personnel	Low	Moderate to high
Guarantee against bias	Moderate	Good to high
General usefulness	Measures audience response; can measure both knowledge and enjoyment; is entertaining	Can provide a large amount of valid and reliable data about the audience; can assess audience characteristics, knowledge, opinion, attitude, and behavior
General limitations	Participants self-select, so may not get a measure of audience learning; repeat playing by young people may be a problem; possible problems with vandalism and mechanical failure	Requires considerable expertise to prepare questionnaire items, draw study sample, and analyze results; time-consuming

(Continued)

Table 2 (Concluded)

Rating Characteristics	Technique	
	Formal Interview	Informal Interview
Description	An oral version of the questionnaire technique	Questions are asked of a sample of visitors during casual conversation to determine enjoyment, knowledge, attitudes, and/or behavior. Visitor does not know s/he is being interviewed
Speed of feedback	Fair	Fair
Cost	High	High
Burden on visitor	High	Moderate
Burden on personnel	High	High
Guarantee against bias	Good to high	Moderate to good
General usefulness	Has same advantages as questionnaire. In addition, may be able to include younger people in sample, may get higher response rate; can ask more complete questions	Has same advantages as formal interview. In addition, may be better able to gather information on sensitive issues
General limitations	Same limitations as questionnaire; also difficult to ask same question in same way across all respondents	Same limitations as formal interview; may be even more difficult to ask the same question in same way across all respondents

Peer evaluation

264. Peer evaluation occurs when an interpreter, his or her message, or the media s/he chooses to communicate the message is evaluated by professional colleagues (Figure 43). *This is a useful, easy,* and inexpensive evaluation technique. Its greatest asset is that it can be carried out during the developmental stages of the program. Its limitations include failure to measure audience response and the "in-house" nature of the review. Fellow interpreters may be so close to the interpretive message and so trained in appropriate presentation strategies that they are unable to respond to the program from the perspective of the audience. For example, Ham and Shew (1979) found that visitors and interpreters had widely discrepant views of what constitutes enjoyable interpretation. In fact, the two groups' rank orderings of interpretive activities from excellent to awful were negatively correlated.

Auditing by an expert

265. Auditing by an expert is similar to peer evaluation. The major difference is that the interpreter's colleagues are replaced by an *expert in interpretation.* The expert should be someone who has both considerable training and experience in interpretation. S/he provides evaluation early, takes an outsider's perspective (a valuable asset), and adds professionally to interpretive planning and programming. While the expert may also lack the audience perspective, his or her assessment of program effectiveness is generally more accurate than are peer evaluations.

Review by panel of outsiders

266. The selection of a panel of reviewers with characteristics similar to those of the anticipated audience represents an attempt to gain audience response during the early stages of program development. While such a group can provide feedback quickly and at little cost in dollars and personnel time, it is often difficult to identify and gain the cooperation of a representative sample of the project users. If panel members are volunteers, only those interested in the Corps project and interpretation are likely to join. Their evaluation of interpretive presentations would likely represent one end of the spectrum of total audience response.

EVALUATION OF INTERPRETIVE PROGRAM

District _____ Route/Location _____

Presented by _____ Start time _____ Finish time _____

_____ Subject _____

Date _____ Attendance _____

ELEMENTS	COMMENTS
Warm-up	
Introduction	
Theme	
Continuity	
Enthusiasm	
Level of presentation	
Acuracy	
Use of program aids	
Pace/Duration	
Voice & Speech	
Appearance	
Rapport	
Structuring	
Questioning	
Silence	

ELEMENTS	COMMENTS
Accepting	
Modeling	
Facilitating acquisition of data	
Group structure	
Personality	
Facts & Feelings	
Mode	
Activity standards	
Behavioral objectives	
Major concepts	
Conclusion	
General impressions	

Evaluated by _____ Date discussed with employee _____

Figure 43. An example of a form that may be used in peer evaluation. Reproduced from Janet Carle. 1980. "Evaluation of the Interpretive Experience," The Interpreter, Vol 11, No. 4, pp 9-10, Western Interpreters Association

Observing audience attention

267. The interpreter can personally observe audience attention; however, for evaluation purposes it is better to have someone else observe and record audience response (Figure 44). Often a professional colleague can help out. Dick, Myklestad, and Wagar (1975) have developed and tested an observation procedure that specifies certain indicators of audience attention, requires scanning the audience at regular intervals and recording the percentage of the audience paying attention, and calls for the correlation of interpreter behavior and/or the message with audience response. This process provides feedback quickly and at little cost to the interpretive budget or to visitors. However, attention is not the objective of interpretive programs; little information is available on its correlation with enjoyment, knowledge gain, or attitude change. For example, people can gaze off but still hear the message. Finally, it is difficult to accurately assess the percent of audience paying attention, especially for large groups.

Figure 44. During interpretation programs, a Corps ranger who is uninvolved with the presentation can observe and record the indicators of audience attention. Photo courtesy of South Atlantic Division

Observing listening or viewing time

268. Another behavior measure of visitor preference for and enjoyment of specific interpretive presentations is to observe and record percent of time spent reading a message or viewing a program relative to

the actual time required to read or view the entire presentation (Shiner and Shafer 1975). This technique provides feedback quickly with little impact upon the visitor. However, reading speed varies considerably; it may be necessary to establish different standards for actual reading time for different user groups. Also, longer than average reading time may not mean the message is interesting; it may mean that the story is so complex or poorly written that the visitor must read and reread it. Training is required to develop accurate observational procedures. For example, the observer must be unobtrusive and pay strict attention to detail. If additional staff must be hired to conduct the observations, then the process can become expensive. Finally, the observer can only see behavior; the technique does not provide information on motivations, knowledge, or attitudes.

Time-lapse photography

269. In evaluation by time-lapse photography, the camera replaces the observer. The camera (usually cameras) takes pictures at specified intervals, recording audience attention to the interpretive presentation, length of reading or viewing time, and/or patterns of visitor movement through the evaluation area (e.g., the exhibit room). The camera has certain advantages over the human observer. It does not get tired, is not distracted, and records a permanent record of behavior. On the other hand, cameras are fairly expensive, do break down, and film must be processed. Like the human observer, the camera cannot measure knowledge or attitudes. Both observational methods are subject to ethical questions of invasion of privacy, but hidden cameras seem to pose the greater problem. Corps interpreters should determine the legality of using photography to measure visitor response and should obtain the necessary approvals before using it.

Behavioral measures of preference

270. Another behavioral measure of visitor preferences for interpretive programs is to give the visitor a choice and then observe which presentation or activity is chosen most frequently. This evaluation tool provides a direct service to the public, does not cost much, provides feedback quickly, and is easy to use. It does not place a burden

on the public. Its limitations are its measurement of predisposition based on program titles or descriptions rather than response to the presentation itself, the lack of assurance that the visitor is actually satisfied with the program chosen (this is less of a problem for repeat visitors), and the lack of information about why a given program is chosen and whether there is audience change because of the program.

Observation of behavior

271. A frequent objective of interpretive programs is to change the visitor's behavior (e.g. to have the visitor spend more time on the nature trail, to reduce littering on the nature trail, or to reduce vandalism of signs on the nature trail). A logical and direct way to determine whether these programs are effective is to observe the visitor, i.e., to unobtrusively follow or observe the visitor and record behavior (Figure 45). This can often be accomplished at visitor centers, nature centers, on nature trails, and in campgrounds. It does, however, require highly trained observers, takes considerable time, and can be costly.

Figure 45. Observation of project visitors can indicate the amount and type of use and, indirectly, the effectiveness of interpretation services.
Photo courtesy of Nashville District

Finally, Corps interpreters must weigh the benefits of such observation against possible costs to the visitor in terms of loss of privacy.

Observation of behavior traces

272. The method of observation of behavior traces substitutes the recording of evidence of behavior for the observation of actual behavior. Fingerprints and nose prints on exhibit cases, wear and tear on floors in front of exhibits, litter or vandalism on trails, and membership in conservation organizations are all behavior traces that might be appropriate measures of the effectiveness of interpretation. This technique can often be carried out onsite and after the visitor has left the scene. It does not invade the individual visitor's privacy. On the other hand, the method may not be appropriate for evaluating the success of interpretive programs to change enjoyment, knowledge, or attitudes. Some behaviors may not have observable traces. Finally, it is often difficult to know whether the individual who left the behavioral trace actually received the interpretive message.

Self-testing device

273. The self-testing device, e.g., the recording quizboard, is generally used to evaluate the effectiveness of some other interpretive presentation (Wagar 1972). For example, the slide program in the auditorium of the Corps visitor center may present the story of the great blue heron rookery on an island in the reservoir. The program may cover such topics as number of birds in the rookery, nesting behavior, feeding behavior, and mortality rates among the young. A recording quizboard in the adjoining exhibit room may present the visitor questions about the heron program, offer alternate answers, and record the visitor's responses. These responses can then later be analyzed to determine percentage of correct answers. Such self-testing devices place little burden on the visitor or Corps personnel. They provide a measure of immediate recall of information and perhaps indicate interest in the topic. They are, however, moderately expensive, are somewhat prone to vandalism and breakdown, do not measure knowledge retained over time, and can be played over and over again by the same people (causing bias in conclusions about total audience response). Participation is

voluntary, so information recorded probably does not represent the knowledge level of the entire audience. Finally, there is often no way to know if the respondent actually saw the program being evaluated.

Questionnaires

274. The questionnaire includes a written set of items designed to gather information about visitor characteristics, enjoyment, knowledge, opinion, attitude, and even behavior. Its advantage is its versatility and precision in the kind and amount of information it can provide. However, Corps interpreters should be aware that the development of a valid and reliable questionnaire, the selection of a representative study sample, and the analysis of survey data require great skill and are time-consuming activities. Therefore, Corps interpreters should generally seek the help of university or agency scientists when conducting such user surveys.

275. Questionnaire studies are generally quite expensive, although cost per bit of data is low. The burden placed upon the visitor is generally believed to be high, but many questionnaire surveys among recreationists have yielded very high response rates. An additional limitation on the practical feasibility of using questionnaires is the general requirement that they be cleared by OMB.

Formal interviews

276. The formal interview is similar to the questionnaire except that the items are presented to the respondent orally. This has certain advantages. The interviewer has more knowledge of the extent to which the respondent understands the questions; younger people can be included in the study; more complex issues can be dealt with; response rates are generally higher; and the interview generally takes place onsite (Figure 46). Disadvantages are the greater expense, greater participant burden, a tendency for respondents to attempt to please the interviewer, and a tendency for the interviewer to ask questions somewhat differently through time. Like the questionnaire, the interview can provide accurate information about respondent knowledge, attitude, or behavior, but great skill is needed in designing and carrying out such a study. Data

Figure 46. Formal interviews offer the opportunity to gather detailed demographic characteristics and attitudes, address complex issues, and increase response rates. Photo courtesy of Lower Granite Lock and Dam

analyses are time-consuming. Finally, the interview schedule and study plan must also, in most cases, be cleared by OMB.

Informal interviews

277. The informal interview resembles the formal interview, except that the respondent is not aware that s/he is being interviewed. Specific questions are asked, but this is done during casual conversation (Figure 47). Typically, the researcher adopts the dress and the role of a visitor, engages the respondent in a friendly conversation, and establishes rapport with the respondent. As the conversation flows, the researcher asks the specified questions at opportune moments. This might be done at the end of a nature trail or in a campground to assess appreciation, knowledge gained, or attitude change from an interpretive program. The informal interview has the same advantages as the formal interview; in addition, it is less susceptible to social desirability bias, desire to please the interviewer, and bias introduced by study sponsorship (Moeller et al. 1980). Disadvantages include the expense and time-consuming nature of the personal interview, the likelihood of asking the pertinent questions somewhat differently across respondents,

Figure 47. Through casual conversation, Corps personnel can gather much useful information about project visitors without placing an unnecessary burden upon them. Photo courtesy of Vicksburg District

and the ethical question of recording private conversations for public decision making.

Summary

278. No one evaluation technique by itself can accurately measure the outcomes of all Corps interpretive programs. Indeed, no one procedure is always the best evaluation method for any one program. The best approach is to choose more than one evaluation technique; this permits the strengths of one method to make up for the limitations of another. If this approach is taken, it is often best to select one method that evaluates the message or the interpreter, another that measures audience behavior, and a third that assesses visitor enjoyment, knowledge, or attitude.

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APPENDIX A: ATTENTION-HOLDING TECHNIQUES

1. It does little good to spend valuable time and money developing an interpretive program that visitors ignore. In order to hold the visitor's attention, the program must be rewarding and involve as much audience participation as possible. Below is a list of suggestions for capturing and holding audience attention. These techniques should be adapted to fit the personality of the interpreter.

2. For personal presentations, the following are suggested:

   a. Use hand, head, and body gestures.

   b. Use deliberate pauses to break up your presentation.

   c. Use visual aids (displays, slides, etc.) and real objects whenever possible.

   d. Change your position every now and then so visitors will have to readjust their hearing and vision.

   e. Use positive verbal ("good") or nonverbal (smile) reinforcements when someone responds to a question.

   f. Use examples and analogies to help clarify your points.

   g. Be well prepared and enthusiastic.

   h. Offer valuable knowledge or skills (e.g., "what would you do if your boat capsized?").

3. For interpretive facilities (personal and nonpersonal), the following are suggested:

   a. Use violence or violent events, such as the damage that a bear can do to a tent or the destructive effects of a volcano, to increase visitor attention and interest. Visitor interest in exhibits showing violence or violent events has been documented.* Fortunately, there are many violent events associated with natural processes that can be told in a tasteful way.

   b. Where possible, avoid inert presentations such as mounted photos and written labels; use such things as movies, motion, recorded sound, and changing lighting instead.

   c. Getting the right answer to a question is rewarding. For interpretive trails, consider asking questions at

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* R. F. Washburne and J. A. Wagar. 1972. "Evaluating Visitor Response to Exhibit Content," Curator, Vol 15, No. 3, pp 248-254.

the bottom of each sign and placing the correct answer on the next sign. For exhibits, consider using something like a recording quizboard* that lights up when visitors push the correct buttons.

d. Instead of difficult reading material, use familiar words and examples. Unfamiliar words can add interest, but their meanings should be clarified.

e. Develop programs with parts that make a whole story (e.g., wildlife habitat enhancement); do not rely on isolated facts (identification of wildlife species). Other ways of adding structure to a program include presenting cause-and-effect relationships, going from the simple to the complex, presenting a chronological story, going from the whole to the parts, moving from the familiar to the unfamiliar, moving from the seen to the unseen, and displaying increasingly broader applications of a principle.

f. Use living demonstrations to interpret early history.

g. Involve visitors in performing skills (e.g., pottery making) used by early inhabitants of the area.

h. For interpretive trails, hand out portable cassette type players with a choice of message length, level of difficulty, language, etc.

i. Consider developing brochures in several versions for such diverse groups as children, new visitors, repeat visitors, retirees, non-English speaking visitors, etc.

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* J. A. Wagar. 1972. "The Recording Quizboard: A Device for Evaluating Interpretive Services," USDA Forest Service, Pacific Northwest Forest and Range Experiment Station Research Paper PNW-139, Portland, Oreg.

In accordance with letter from DAEN-RDC, DAEN-ASI dated 22 July 1977, Subject: Facsimile Catalog Cards for Laboratory Technical Publications, a facsimile catalog card in Library of Congress MARC format is reproduced below.

Propst, Dennis B.
A guide to cultural and environmental interpretation in the U.S. Army Corps of Engineers : final report / by Dennis B. Propst and Joseph W. Roggenbuck (Environmental Laboratory, U.S. Army Engineer Waterways Experiment Station). -- Vicksburg, Miss. : The Station ; Springfield, Va. : available from NTIS, [1981].
147, 2 p. : ill. ; 27 cm. -- (Instruction report / U.S. Army Engineer Waterways Experiment Station ; R-81-1)
Cover title.
"August 1981."
"Prepared for Office, Chief of Engineers, U.S. Army."
At head of title: Recreation Research Program.
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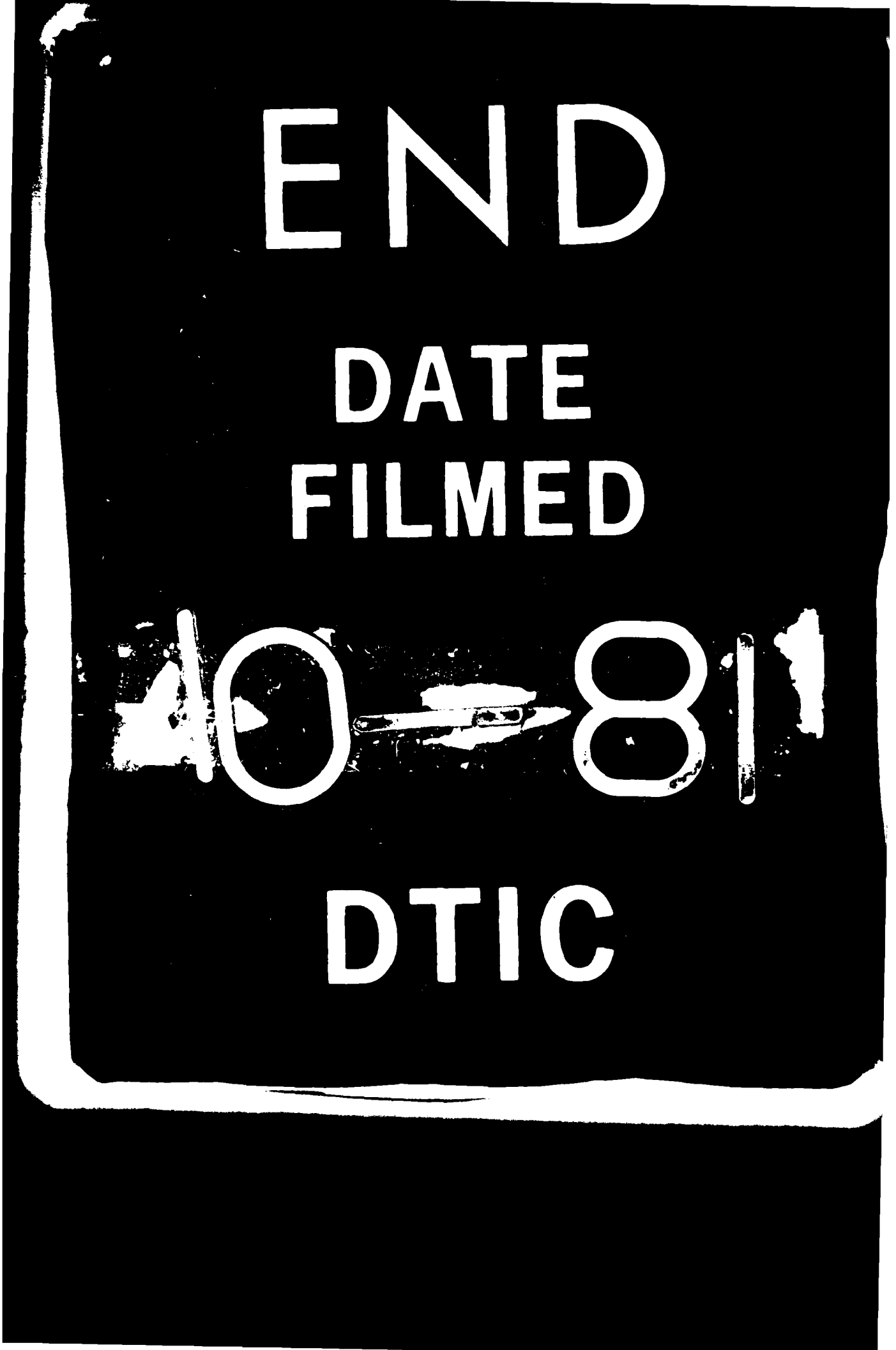
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